rev.	date	Revision History
0	2013.04.01	New publication
0.1	2013.07.09	The change of Appendix 7 SVHC(9th addition), Authorisation(3th addition)
0.2	2014.01.22	The change of Appendix 6 : The addition of the conditions of entry.50(PAHs) The change of Appendix 7 : SVHC(10th addition)
0.3	2014.07.11	The change of Appendix 3-1 : The addition of No.1(g) The change of Appendix 3-2 : - The change of No.12, - The addition of No.21-No.34 The change of Appendix 6 : - The addition of the conditions of entry.47 (Chromium VI compounds) - The addition of entry.64 (1,4-dichlorobenzenes) The change of Appendix 7 : SVHC(11th addition)
0.4	2015.02.02	The change of Appendix 2 : The addition of subject substance in No.8 The change of Appendix 3-1 : The addition of No.4(g) and No.41 The change of Appendix 3-2 : The addition of No.35-No.40 The change of Appendix 7 : Authorisation(4th addition), SVHC(12th addition)
0.5	2015.07.22	The change of Appendix 3-2 : The addition of No.41 and 42 The change of Appendix 7 : SVHC(13th addition)
1.0	2015.10.01	The change of Appendix 1 : The addition of No.8 The change of Appendix 2 : The addition of No.1-No.4 and No.21-No.23 The addition/revision of subject substance in No.12 Renumbering each substance group Theaddition of Appendix 9 and Appendix 9
1.1	2016.01.15	The change of Appendix 7 : SVHC(14th addition)
1.2	2016.9.12	The change of Appendix 1 : Change of the number of chlorine of Polychlorinated naphthalenes (with 3 or more chlorines --> with 2 or more chlorines) The change of Appendix 3-1 : Add the information of exemption expired on 21 July 2016 The change of Appendix 3-2 : The addition of No.31a and No.43. The change of No.26 Delete of No.31 The change of Appendix 6 : The additon of No.65 The change of Appendix 7 : SVHC(15th addition)
1.3	2017.3.31	The change of Appendix 7 : SVHC(16th addition)

rev.	date	Revision History
1.4	2017.9.21	The change of Appendix 3-1 : The change of 9(b),9(b)(1),13(a),13(b),13(b)-(I)(II)(III),39 The change of Appendix 3-2 : The change of No.41 The change of Appendix 6 : The additon of No.46a, No.66, No.67,No.3,No.31(e)(g)(h)(i),No.6,No.2,No.46,No.63 The change of Appendix 7 : SVHC(17th addition)

Annex 1. Level 1(Prohibited substance group)

rev.1.2/2016.9.12

NO		Substance group (English)	Scope of regulation concerning use and handling	Control value of Hitachi group *	Reference laws and regulations	remarks
1	**Cadmium and its compounds**					
		-	Common	No more than 100ppm	EU RoHS Directive EU ELV Directive	
			Packaging materials	No more than 100ppm in total with 4 substances of Cd, Cr(VI), Pb, Hg	EU Packaging Directive USA State law (e.g. FL, GA, IA, IL, NH, MO, PA, WI, etc.)	
2	**Hexavalent chromium compounds**					
		-	Common	No more than 1000ppm	EU RoHS Directive EU ELV Directive	
			Packaging materials	No more than 100ppm in total with 4 substances of Cd, Cr(VI), Pb, Hg	EU Packaging Directive	
3	**Lead and its compounds**					
		-	Common	No more than 1000 ppm	EU RoHS Directive EU ELV Directive GER Prohibition of Chemicals Ordinance - ChemVerbotsV	
			Packaging materials	No more than 100ppm in total with 4 substances of Cd, Cr(VI), Pb, Hg	EU Packaging Directive	
4	**Mercury and its compounds**					
		-	Common	No more than 1000 ppm	EU RoHS Directive EU ELV Directive	
			Packaging materials	No more than 100ppm in total with 4 substances of Cd, Cr(VI), Pb, Hg	EU Packaging Directive	
5	**Polybrominated biphenyls（PBBs）**					
		-	Common	No more than 1000 ppm	EU RoHS Directive	
6	**Polybrominated diphenyl ethers (PBDEs)**					
		-	Common	No more than 1000 ppm	EU RoHS Directive	
7	**Tri-substituted organostannic compounds**					
	7-1	Bis(tributyltin)=Oxide（TBTO）	Common	Intentional use prohibited, and no more than 1000 ppm by weight of tin	JPN Chemical Examination Law /Type 1 specified chemical substances EU REACH Regulation/Restriction No.20	
	7-2	Tributyltin (TBT) compounds	Articles		EU REACH Regulation/Restriction No.20 JPN Chemical Examination Law /Type 2 specified chemical substances	
	7-3	Triphenyltin (TPT) compounds				
	7-4	Other tri-substituted organostannic compounds			EU REACH Regulation/Restriction No.20	
8	**Polychlorinated biphenyls（PCBs）**					
		-	Common	Intentional use prohibited	POPs JPN Chemical Examination Law /Type 1 Specified Chemical Substances GER Prohibition of Chemicals Ordinance - ChemVerbotsV	
9	**Polychlorinated terphenyls（PCTs）**					
		-	Equipments	No more than 50 ppm	EU REACH Regulation/Restriction No.1	
		-	Other than equipments	Intentional use prohibited	EU REACH Regulation/Restriction No.1	
10	**Polychlorinated naphthalenes (with 2 or more chlorines)**					Apply from 1st Oct, 2016
		-	Common	Intentional use prohibited	JPN Chemical Examination Law/Type 1 Specified Chemical Substances	
11	**Alkanes, C10 -C13 , chloro (short-chain chlorinated paraffins) (SCCPs)**					
		-	Common	Intentional use prohibited	POPs	

NO		Substance group (English)	Scope of regulation concerning use and handling	Control value of Hitachi group *	Reference laws and regulations	remarks
12	**Asbestos**					
	12-1	Asbestos CAS:1332-21-4	Common	Intentional use prohibited and no more than 1000 ppm	EU REACH Regulation/Restriction No.6 JPN Industrial Safety and Health Law（Prohibition of Manufacturing, etc.） JPN Industrial Safety and Health Law（Asbestos Ordinance） GER Prohibition of Chemicals Ordinance - ChemVerbotsV	
	12-2	Amosite CAS:12172-73-5				
	12-3	Crocidolite CAS:12001-28-4				
	12-4	Chrysotile CAS:12001-29-5				
	12-5	Anthophyllite CAS:17068-78-9、77536-67-5				
	12-6	Tremolite CAS:14567-73-8、77536-68-6				
	12-7	Actinolite CAS:12172-67-7、77536-66-4				
13	**Ozone layer depleting substances（See Appendix 4 for the applicable substances）**					
		Correspond to Montreal Protocol Class Ⅰ （CFCs, HCFCs, HBFCs, carbon tetrachloride, etc.）	Common	Intentional use prohibited	Montreal Protocol on Substances that Deplete the Ozone Layer JPN Ozone Layer Protection Law	
14	**PFOS <Perfluorooctanesulfonic acid> and its analogous compounds（See Appendix 5 for the applicable substances）**					
		-	Common <Exemption usage> Semiconductor, Photoresists, Photo imaging, Metal plating, Medical devices, Electric and electronic parts for colour printer, Fire-fighting foams	Intentional use prohibited	JPN Chemical Examination Law/Type 1 Specified Chemical Substances POPs EU Regulation No.757/2010 CAN Perfluorooctane Sulfonate and its Salts and Certain Other Compounds Regulations SOR /2008-178. Canadian Environmental Protection Act, 1999	
15	-	2-(2H-1,2,3-benzotriazole -2-yl)-4,6-di-tert-butylphenol	Common	Intentional use prohibited	JPN Chemical Examination Law/Type 1 Specified Chemical Substances	
16	-	Hexachlorobenzene	Common	Intentional use prohibited	JPN Chemical Examination Law/Type 1 Specified Chemical Substances	
17	-	Dimethylfumarate (DMF)	Articles	No more than 0.1ppm	EU REACH Regulation/Restriction No.61	
18	**Hexabromocyclododecane（HBCD or HBCDD, See Appendix 9 for the applicable substances）**					
		-	Common	Intentional use prohibited	JPN Chemical Examination Law/Type 1 Specified Chemical Substances POPs EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances）	Apply from 1st April, 2016

* This is specified as control value for Hitachi group in reference to related laws and regulations (Reference laws and regulations column).

Annex 2. Level 2 (Controlled substance group)

rev.1.0/2015.10.1

No		Substance group (English)	Reference laws and regulations or Industrial standards	Remarks
1	-	Bis (2-ethylhexyl) phthalate（DEHP）	EU RoHS Directive (from July,2019) EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances） EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	Translation to Level 1 at following date: Products or parts correspond to EU RoHS/Cat8&9: 18th Janualy, 2021 Products or parts other than above: 14th Janualy, 2019
2	-	Benzyl butyl phthalate（BBP）		
3	-	Dibutyl phthalate（DBP）		
4	-	Diisobutyl phthalate (DIBP)	EU RoHS Directive (from July,2019) EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances）	
5	**Antimony and its compounds（which include alloys）**			
		-	EU Safety of toys Directive	
6	**Arsenic and its compounds（which include alloys）**			
	6-1	-	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
			EU Safety of toys Directive	
			JPN Industrial Safety and Health Law (Labelling duty of notifiable substances and Specified Group-2 Substances of Ordinance on Prevention of Hazards Due to Specified Chemical Substances)	
	6-2	Diarsenic pentaoxide and Diarsenic trioxide	EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances）	
7	**Beryllium and its compounds（which include alloys）**			
		-	JPN Industrial Safety and Health Law（Manufacturing licence)	
8	**Nickel and its compounds（which include alloys）**			
		-	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
			EU Safety of toys Directive	
			JPN Industrial Safety and Health Law (Labelling duty of notifiable substances and Specified Group-2 Substances of Ordinance on Prevention of Hazards Due to Specified Chemical Substances)	
9	**Selenium and its compounds（which include alloys）**			
		-	EU Safety of toys Directive	
10	**Un-specifc brominated frame retardants**			
		Unspecific brominated frame retardants which excepted PBBs and PBDEs	JEDEC JS709	
			IPC-4101 and IEC61249-2-21	
11	**Polyvinyl chloride（PVC）and its mixture, its copolymer**			
		-	JS709	
12	**Phthalate esters other than No.1 - No.4 of this List**			
	12-1	Bis(2-methoxyethyl) phthalate	EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances）	
	12-2	Diisopentylphthalate		
	12-3	Dipentyl phthalate (DPP)		
	12-4	Dihexyl phthalate		
	12-5	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters		
	12-6	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich Diisoheptyl phthalate (DIHP)		
	12-7	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear		
	12-8	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear		
	12-9	Di-“isononyl” phthalate (DINP)	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
	12-10	Di-“isodecyl” phthalate (DIDP)		
	12-11	Di-n-octyl phthalate (DNOP)		
	12-12	Other pfthalate esters	-	

No		Substance group (English)	Reference laws and regulations or Industrial standards	Remarks
13	**Ozone layer depleting substances**			
		HCFCs (Fall into Montreal Protocol Class Ⅱ)	Montreal Protocol on Substances that Deplete the Ozone Layer JPN Ozone Layer Protection Law（Content controlled substances）	
14	**Radioactive substances**			
		-	JPN Nuclear Reactor Regulation Law JPN Radiation Hazard Prevention Act	
15	**Di-substituted organostannic compounds**			
	15-1	Dibutyltin compounds（DBT）	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
	15-2	Dioctyltin compounds（DOT）		
	15-3	Other di-substituted organostannic compounds	-	
16	**Cobalt and its compounds（which include alloys）**			
	16-1	-	EU Safety of toys Directive JPN Industrial Safety and Health Law (Labelling duty of notifiable substances and Specified Group-2 Substances of Ordinance on Prevention of Hazards Due to Specified Chemical Substances)	
	16-2	Cobalt(II) chloride	EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances）	
	16-3	Cobalt(II) sulfate		
	16-4	Cobalt(II) nitrate		
	16-5	Carbonic acid cobalt(II)		
	16-6	Cobalt(II) acetate		
17	**Azodyes and azocolourants which form specified amines （Specified amines ：See Appendix 8 for the applicable substances）**			
		-	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
18	-	Formaldehyde	JPN Law for the Control of Household Products containing Harmful Substances GER Prohibition of Chemicals Ordinance - ChemVerbotsV	
19	-	Benzene	JPN Industrial Safety and Health Law (Labelling duty of notifiable substances and Specified Group-2 Substances of Ordinance on Prevention of Hazards Due to Specified Chemical Substances)	
20	**Fluorine based greenhouse gasses (HFC, PFC, SF6)**			
		-	JPN Law Concerning the Promotion of Measures Against Global Warming EU Regulation（EC）No.842/2006	
21	**Polycyclic-aromatic hydrocarbons (PAHs) corresponding to REACH/restriction substance**			
		See Appendix 6 for the applicable substances	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
22	**Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA**			
		See Appendix 10 for the applicable substances	Domestic low in Norway	
23	-	Benzenamine, N-phenyl-,reaction products with styrene and 2,4,4-trimethylpentene (BNST)	Domestic low in Canada	
24	**REACH/Restriction substances**			
		See Appendix 6 for the applicable substances	EU REACH Regulation/Restriction （See Appendix 6 for the applicable substances）	
25	**REACH/Authorization substances**			
		See Appendix 7 for the applicable substances	EU REACH Regulation/Authorization （See Appendix 7 for the applicable substances）	
26	**REACH/SVHC**			
		See Appendix 7 for the applicable substances	EU REACH Regulation/SVHC （See Appendix 7 for the applicable substances）	
27	**JAMP declarable substances**			
		-	JAMP declarable substances	

(Notes)
I n relation to REACH/restriction substance group
Although this substance group belongs to the Level 2 (Controlled substance group), it may be prohibited to use in some particular applications.
Each substance in this group is restricted to be banned etc. When the substance is used under the condition of restriction which is individually specified in REACH Regulation.
Therefore, when one or more of the substances is contained in a product, it is necessary to compare the use of the relevant product with the restricted use of the substance, and to determine whether the regulation shoule be applied or not.

Appendix 3-1. The exemptions of RoHS Ⅱ Annex3

rev.1.4/2017.09.21

(Note)
About exemptions already expired, these exempions may be used in spare parts for EEE placed on the market before expired day of each exemption continuously.
(from 4(f) of Article4)

No	Subs-tance	Exemption	Scope and dates of applicability	
1		Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):		
1(a)		For general lighting purposes < 30 W: 5 mg	5 mg	Expired on 31 December 2011
			3.5 mg	Expires on 31 December 2012
			2.5 mg	Remain in force until the decision on extension application continuously
1(b)		For general lighting purposes ≥ 30 W and < 50 W: 5 mg	5 mg	Expired on 31 December 2011
			3.5 mg	Remain in force until the decision on extension application continuously
1(c)		For general lighting purposes ≧ 50 W and < 150 W: 5 mg	5 mg	Remain in force until the decision on extension application continuously
1(d)		For general lighting purposes ≥ 150 W: 15 mg	15 mg	Remain in force until the decision on extension application continuously
1(e)		For general lighting purposes with circular or square structural shape and tube diameter ≦ 17 mm	No limitation of use	until 31 december 2011
			7 mg	Remain in force until the decision on extension application continuously
1(f)		For special purposes: 5 mg	5 mg	Remain in force until the decision on extension application continuously
1(g)		For general lighting purposes < 30 W with a lifetime equal or above 20 000 h	3.5 mg	Expires on 31 December 2017
2(a)		Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):		
2(a)(1)		Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg	5 mg	Expired on 31December 2011
			4mg	Remain in force until the decision on extension application continuously
2(a)(2)		Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 5 mg	5 mg	Expired on 31December 2011
			4mg	Remain in force until the decision on extension application continuously
2(a)(3)		Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 5 mg	5.0mg	Expired on 31December 2011
			3.5mg	Remain in force until the decision on extension application continuously
2(a)(4)		Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg	5.0mg	Expired on 31December 2012
			3.5mg	Remain in force until the decision on extension application continuously
2(a)(5)		Tri-band phosphor with long lifetime (≥ 25000h): 8 mg	8.0mg	Expired on 31December 2011
			5.0mg	Remain in force until the decision on extension application continuously
2(b)		Mercury in other fluorescent lamps not exceeding (per lamp):		
2(b)(1)		Linear halophosphate lamps with tube >,28 mm (e.g. T10 and T12): 10 mg	10 mg	Expires on 13 April 2012
2(b)(2)		Non-linear halophosphate lamps (all diameters): 15 mg	15 mg	Expires on 13 April 2016
2(b)(3)		Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9)	No limitation of use	Expired on 31December 2011
			15 mg	Remain in force until the decision on extension application continuously
2(b)(4)		Lamps for other general lighting and special purposes (e.g. induction lamps)	No limitation of use	Expired on 31December 2011
			15 mg	Remain in force until the decision on extension application continuously

No	Subs-tance	Exemption	Scope and dates of applicability	
3	Hg	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):		
3(a)		Short length (≤500 mm)	No limitation of use	Expired on 31December 2011
			3.5mg	Remain in force until the decision on extension application continuously
3(b)		Medium length (>500mm and ≤ 1500 mm)	No limitation of use	Expired on 31December 2011
			5mg	Remain in force until the decision on extension application continuously
3(c)		Long length (> 1500 mm)	No limitation of use	Expired on 31December 2011
			13mg	Remain in force until the decision on extension application continuously
4(a)		Mercury in other low pressure discharge lamps (per lamp)	No limitation of use	Expired on 31December 2011
			15mg	Remain in force until the decision on extension application continuously
4(b)		Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60:		
4(b)-I		P ≤ 155 W	No limitation of use	Expired on 31December 2011
			30mg	Remain in force until the decision on extension application continuously
4(b)-Ⅱ		155W < P ≤ 405 W	No limitation of use	Expired on 31December 2011
			40mg	Remain in force until the decision on extension application continuously
4(b)-Ⅲ		P > 405 W	No limitation of use	Expired on 31December 2011
			40mg	Remain in force until the decision on extension application continuously
4(c)		Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):		
4(c)-I		P ≤ 155 W	No limitation of use	Expired on 31December 2011
			25mg	Remain in force until the decision on extension application continuously
4(c)-Ⅱ		155W < P ≤ 405W	No limitation of use	Expired on 31December 2011
			30mg	Remain in force until the decision on extension application continuously
4(c)-Ⅲ		P > 405 W	No limitation of use	Expired on 31December 2011
			40mg	Remain in force until the decision on extension application continuously
4(d)		Mercury in High Pressure Mercury (vapour) lamps (HPMV)		Expires on 13 April 2015 (the exclusion abolition)
4(e)		Mercury in metal halide lamps(MH)		Remain in force until the decision on extension application continuously
4(f)		Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex		Remain in force until the decision on extension application continuously
4(g)		Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair + 0,3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 °C; (b) 15 mg per electrode pair + 0,24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.		Expires on 31 December 2018

No	Subs-tance	Exemption	Scope and dates of applicability	
5(a)	Pb	Lead in glass of cathode ray tubes		Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
5(b)		Lead in the glass of fluorescent tubes not exceeding 0,2% by weight	up to 0.2 % by weight	Remain in force until the decision on extension application continuously
6(a)		Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35% lead by weight	up to 0.35 % lead by weight	Remain in force until the decision on extension application continuously
6(b)		Lead as an alloying element in aluminium containing up to 0,4% lead by weight	up to 0.4 % by weight	Remain in force until the decision on extension application continuously
6(c)		Copper alloy containing up to 4% lead by weight	up to 4 % lead by weight	Remain in force until the decision on extension application continuously
7(a)		Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)		Remain in force until the decision on extension application continuously
7(b)		Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications		Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
7(c)-I		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		Remain in force until the decision on extension application continuously
7(c)-II		Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher		Remain in force until the decision on extension application continuously
7(c)-(III)		Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC		Expires on 1 Janualy 2013 (the exclusion abolition)
7(c)-(Ⅳ)		Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors’		Remain in force until the decision on extension application continuously
8(a)	Cd	Cadmium and its compounds in one shot pellet type thermal cut-offs		Expires on 1 Janualy 2012 (the exclusion abolition)
8(b)		Cadmium and its compounds in electrical contacts		Remain in force until the decision on extension application continuously
9	Cr(Ⅵ)	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0.75 % by weight in the cooling solution	0.75 % by weight	Remain in force until the decision on extension application continuously
9(b)		Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications		Applies to categories 8, 9 and 11; expires on: – 21 July 2023 for category 8 in vitro diagnostic medical devices, –21 July 2024 for category 9 industrial monitoring and control instruments and for category 11, –21 July 2021 for other subcategories of categories 8 and 9.
9(b)(1)		Lead in bearing shells and bushes for refrigerant-containing hermetic scroll compressors with a stated electrical power input equal or below 9kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications		Applies to category 1; expires on 21 July 2019.’
11(a)		Lead used in C-press compliant pin connector systems		Expires on 24 September 2010 (the exclusion abolition)
11(b)		Lead used in other than C-press compliant pin connector systems		Expires on 1 Janualy 2013 (the exclusion abolition)
12		Lead as a coating material for the thermal conduction module C-ring		Expires on 24 September 2010 (the exclusion abolition)

No	Subs-tance	Exemption		Scope and dates of applicability
13(a)	Pb	Lead in white glasses used for optical applications		Applies to all categories; expires on: – 21 July 2023 for category 8 in vitro diagnostic medical devices; –21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; – 21 July 2021 for all other categories and subcategories'
13(b)		Cadmium and lead in filter glasses and glasses used for reflectance standards		Applies to categories 8, 9 and 11; expires on: – 21 July 2023 for category 8 in vitro diagnostic medical devices; –21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; –21 July 2021 for other subcategories of categories 8 and 9
13(b)–(I)		Lead in ion coloured optical filter glass types		Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10'
13(b)–(II)		Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex		Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10'
13(b)–(III)		Cadmium and lead in glazes used for reflectance standards		Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10'
14		Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight	80 % and less than 85 % by weight	Expires on 1 Janualy 2011 (the exclusion abolition)
15		Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages		Remain in force until the decision on extension application continuously
16		Lead in linear incandescent lamps with silicate coated tubes		Expired on 1 September 2013
17		Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications		Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
18(a)		Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba		・Expires on 1 January 2011
18(b)		Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP ($BaSi_2O_5$:Pb)		Remain in force until the decision on extension application continuously
19		Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact energy saving lamps(ESL)		Expired on 1 June 2011
20		Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)		Expired on 1 June 2011
21	Cd Pb	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses		Remain in force until the decision on extension application continuously
23		Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less		Expires on 24 September 2010 (the exclusion abolition)
24		Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors		Remain in force until the decision on extension application continuously
25		Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring		Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
26		Lead oxide in the glass envelope of black light blue lamps		Expired on 1 June 2011
27		Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers		Expired on 24 September 2010
29		Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC		Remain in force until the decision on extension application continuously

No	Subs-tance	Exemption	Scope and dates of applicability
30	Cd	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
31	Pb	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)	Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
32		Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	Remain in force until the decision on extension application continuously
33		Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
34		Lead in cermet-based trimmer potentiometer elements	Remain in force until the decision on extension application continuously
36	Hg	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expires on 1 July 2010
37	Pb	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	Remain in force until the decision on extension application continuously
38	Cd	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	Cat.1,7 and 10 : Expires on 21 July 2016 (the exclusion abolition) Cat. 8 and 9 except for the following: Expires on 21 July 2021 In vitro diagnostic medical devices: Expires on 21 July 2023 Industrial monitoring and control instruments: Expires on 21 July 2024
39		Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm^2 of light-emitting area) for use in solid state illumination or display systems	Expires on 1 July 2014
40		Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013
41	Pb	Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council	Expires on 31 December 2018

（Disclaimers）

Hitachi group does not guarantee any contents in exemption of RoHSⅡ described above.

Please refer to the original law text regarding the latest information.

Appendix 3-2. The exemptions of RoHSⅡ Annex4 (The exemptions of category 8&9)

rev.1.4/2017.09.21

No.	Exemption
Equipment utilising or detecting ionising radiation	
1	Lead, cadmium and mercury in detectors for ionising radiation.
2	Lead bearings in X-ray tubes.
3	Lead in electromagnetic radiation amplification devices: micro-channel plate and capillary plate.
4	Lead in glass frit of X-ray tubes and image intensifiers and lead in glass frit binder for assembly of gas lasers and for vacuum tubes that convert electromagnetic radiation into electrons.
5	Lead in shielding for ionising radiation.
6	Lead in X-ray test objects.
7	Lead stearate X-ray diffraction crystals.
8	Radioactive cadmium isotope source for portable X-ray fluorescence spectrometers.
Sensors, detectors and electrodes	
1a	Lead and cadmium in ion selective electrodes including glass of pH electrodes.
1b	Lead anodes in electrochemical oxygen sensors.
1c	Lead, cadmium and mercury in infra-red light detectors.
1d	Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide.
Others	
9	Cadmium in helium-cadmium lasers.
10	Lead and cadmium in atomic absorption spectroscopy lamps.
11	Lead in alloys as a superconductor and thermal conductor in MRI.
12	Lead and cadmium in metallic bonds creating superconducting magnetic circuits in MRI, SQUID, NMR (Nuclear Magnetic Resonance) or FTMS (Fourier Transform Mass Spectrometer) detectors. Expires on 30 June 2021.
13	Lead in counterweights.
14	Lead in single crystal piezoelectric materials for ultrasonic transducers.
15	Lead in solders for bonding to ultrasonic transducers.
16	Mercury in very high accuracy capacitance and loss measurement bridges and in high frequency RF switches and relays in monitoring and control instruments not exceeding 20 mg of mercury per switch or relay.
17	Lead in solders in portable emergency defibrillators.
18	Lead in solders of high performance infrared imaging modules to detect in the range 8-14 μm.

No.	Exemption
19	Lead in Liquid crystal on silicon (LCoS) displays.
20	Cadmium in X-ray measurement filters.
21	Cadmium in phosphor coatings in image intensifiers for X-ray images until 31 December 2019 and in spare parts for X-ray systems placed on the EU market before 1 January 2020.
22	Lead acetate marker for use in stereotactic head frames for use with CT and MRI and in positioning systems for gamma beam and particle therapy equipment. Expires on 30 June 2021.
23	Lead as an alloying element for bearings and wear surfaces in medical equipment exposed to ionising radiation. Expires on 30 June 2021.
24	Lead enabling vacuum tight connections between aluminium and steel in X-ray image intensifiers. Expires on 31 December 2019.
25	Lead in the surface coatings of pin connector systems requiring nonmagnetic connectors which are used durably at a temperature below – 20 ° C under normal operating and storage conditions. Expires on 30 June 2021.
26	Lead in — solders on printed circuit boards, — termination coatings of electrical and electronic components and coatings of printed circuit boards, — solders for connecting wires and cables, — solders connecting transducers and sensors, that are used durably at a temperature below – 20 ° C under normal operating and storage conditions. Lead in solders of electrical connections to temperature measurement sensors in devices which are designed to be used periodically at temperatures below – 150 °C. Expires on 30 June 2021.
27	Lead in — solders, — termination coatings of electrical and electronic components and printed circuit boards, — connections of electrical wires, shields and enclosed connectors, which are used in (a) magnetic fields within the sphere of 1 m radius around the isocentre of the magnet in medical magnetic resonance imaging equipment, including patient monitors designed to be used within this sphere, or (b) magnetic fields within 1 m distance from the external surfaces of cyclotron magnets, magnets for beam transport and beam direction control applied for particle therapy. Expires on 30 June 2020.
28	Lead in solders for mounting cadmium telluride and cadmium zinc telluride digital array detectors to printed circuit boards. Expires on 31 December 2017.
29	Lead in alloys, as a superconductor or thermal conductor, used in cryo-cooler cold heads and/or in cryo-cooled cold probes and/or in cryo-cooled equipotential bonding systems, in medical devices (category 8) and/or in industrial monitoring and control instruments. Expires on 30 June 2021.

No.	Exemption
30	Hexavalent chromium in alkali dispensers used to create photocathodes in X-ray image intensifiers until 31 December 2019 and in spare parts for X-ray systems placed on the EU market before 1 January 2020.
31a	Lead, cadmium, hexavalent chromium, and polybrominated diphenyl ethers (PBDE) in spare parts recovered from and used for the repair or refurbishment of medical devices, including in vitro diagnostic medical devices, or electron microscopes and their accessories, provided that the reuse takes place in auditable closed-loop business-to-business return systems and that each reuse of parts is notified to the customer. Expires on: (a) 21 July 2021 for the use in medical devices other than in vitro diagnostic medical devices (b) 21 July 2023 for the use in in vitro diagnostic medical devices (c) 21 July 2024 for the use in electron microscopes and their accessories
32	Lead in solders on printed circuit boards of detectors and data acquisition units for Positron Emission Tomographs which are integrated into Magnetic Resonance Imaging equipment. Expires on 31 December 2019.
33	Lead in solders on populated printed circuit boards used in Directive 93/42/EEC class IIa and IIb mobile medical devices other than portable emergency defibrillators. Expires on 30 June 2016 for class IIa and on 31 December 2020 for class IIb.
34	Lead as an activator in the fluorescent powder of discharge lamps when used for extracorporeal photopheresis lamps containing BSP (BaSi 2 O 5 :Pb) phosphors. Expires on 22 July 2021.
35	Mercury in cold cathode fluorescent lamps for back-lighting liquid crystal displays, not exceeding 5 mg per lamp, used in industrial monitoring and control instruments placed on the market before 22 July 2017 Expires on 21 July 2024.
36	Lead used in other than C-press compliant pin connector systems for industrial monitoring and control instruments. Expires on 31 December 2020. May be used after that date in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021.
37	Lead in platinized platinum electrodes used for conductivity measurements where at least one of the following conditions applies: (a) wide-range measurements with a conductivity range covering more than 1 order of magnitude (e.g. range between 0,1 mS/m and 5 mS/m) in laboratory applications for unknown concentrations; (b) measurements of solutions where an accuracy of +/– 1 % of the sample range and where high corrosion resistance of the electrode are required for any of the following: (i) solutions with an acidity < pH 1; (ii) solutions with an alkalinity > pH 13; (iii) corrosive solutions containing halogen gas; (c) measurements of conductivities above 100 mS/m that must be performed with portable instruments. Expires on 31 December 2018.

No.	Exemption
38	Lead in solder in one interface of large area stacked die elements with more than 500 interconnects per interface which are used in X-ray detectors of computed tomography and X-ray systems. Expires on 31 December 2019. May be used after that date in spare parts for CT and X-ray systems placed on the market before 1 January 2020.
39	Lead in micro-channel plates (MCPs) used in equipment where at least one of the following properties is present: (a) a compact size of the detector for electrons or ions, where the space for the detector is limited to a maximum of 3 mm/MCP (detector thickness + space for installation of the MCP), a maximum of 6 mm in total, and an alternative design yielding more space for the detector is scientifically and technically impracticable; (b) a two-dimensional spatial resolution for detecting electrons or ions, where at least one of the following applies: (i) a response time shorter than 25 ns; (ii) a sample detection area larger than 149 mm2; (iii) a multiplication factor larger than 1,3 × 103. (c) a response time shorter than 5 ns for detecting electrons or ions; (d) a sample detection area larger than 314 mm2 for detecting electrons or ions; (e) a multiplication factor larger than 4,0 × 107. The exemption expires on the following dates: (a) 21 July 2021 for medical devices and monitoring and control instruments; (b) 21 July 2023 for in-vitro diagnostic medical devices; (c) 21 July 2024 for industrial monitoring and control instruments.
40	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC for industrial monitoring and control instruments. Expires on 31 December 2020. May be used after that date in spare parts for industrial monitoring and control instruments placed on the market before 1 January 2021.

No.	Exemption
41	Lead as a thermal stabiliser in polyvinyl chloride (PVC) used as base material in amperometric, potentiometric and conductometric electrochemical sensors which are used in in-vitro diagnostic medical devices for the analysis of blood and other body fluids and body gases. Expires on 31 Dec 2018.
42	Mercury in electric rotating connectors used in intravascular ultrasound imaging systems capable of high operating frequency (> 50 MHz) modes of operation. Expires on 30 June 2019.'
43	**Cadmium anodes in Hersch cells for oxygen sensors used in industrial monitoring and control instruments, where sensitivity below 10 ppm is required. Expires on 15 July 2023.'**

(Disclaimers)
Each exemptions of RoHS Ⅱ placed in this list does not guarantee contents in Hitachi group.
About the latest information, please refer to the law original.

Appendix 4. Ozone depleting substances

rev.0/2013.02.28

Montreal Protocol							
Class	Annex	Group	Sample substances			Chemical formula	Sample CAS No
Ⅰ	A	Ⅰ	CFC [Chlorofluorocarbon]				
				CFC-11	Trichlorofluoromethane	$CFCl_3$	75-69-4
				CFC-12	Dichlorodifluoromethane	CF_2Cl_2	75-71-8
				CFC-113	Trichlorotrifluoroethane (CFC-113)	$C_2F_3Cl_3$	26523-64-8
					1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)(CAS No 76-13-1)		354-58-5
					1,1,1-Trichloro-2,2,2-trifluoroethane (CFC-113a)(CAS No 354-58-5)		76-13-1
				CFC-114	Dichlorotetrafluoroethane (CFC-114)	$C_2F_4Cl_2$	1320-37-2
					1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC-114)(CAS No 76-14-2)		374-07-2
					1,1-Dichloro-1,2,2,2-tetrafluoroethane (CFC-114a)(CAS No 374-07-2)		76-14-2
				CFC-115	Chloropentafluoroethane (CFC-115)	C_2F_5Cl	76-15-3
					1-Chloro-1,1,2,2,2-pentafluoroethane (CFC-115)		
Ⅰ	A	Ⅱ	Halon				
				Halon-1211	Bromochlorodifluoromethane	CF_2BrCl	353-59-3
				Halon-1301	Bromotrifluoromethane	CF_3Br	75-63-8
				Halon-2402	Dibromotetrafluoroethane	$C_2F_4Br_2$	124-73-2
					1,2-Dibromo-1,1,2,2-tetrafluoroethane (CAS No 124-73-2)		25497-30-7
					2,2-Dibromo-1,1,1,2-tetrafluoroethane (CAS No 27336-23-8)		27336-23-8
Ⅰ	B	Ⅰ	Other completely halogenated CFC				
				CFC-13	Chlorotrifluoromethane	CF_3Cl	75-72-9
				CFC-111	Pentachlorofluoroethane (CFC-111)	C_2FCl_5	354-56-3
					1,1,1,2,2-Pentachloro-2-fluoroethane		954-56-3
					1,1,2,2,2-Pentachloro-1-fluoroethane		29756-45-4
				CFC-112	Tetrachlorodifluoroethane (CFC-112)	$C_2F_2Cl_4$	76-11-9
					1,1,2,2-Tetrachloro-1,2-difluoroethane (CFC-112)		76-12-0
					1,1,1,2-Tetrachloro-2,2-difluoroethane (CFC-112a)		
					1,2,2,2-Tetrachloro-1,1-difluoroethane (CFC-112a)		
				CFC-211	Heptachlorofluoropropane (CFC-211)	C_3FCl_7	422-78-6
					1,1,1,2,2,3,3-Heptachloro-3-fluoropropane (CFC-211aa)		422-81-1
					1,1,1,2,3,3,3-Heptachloro-2-fluoropropane (CFC-211ba)		135401-87-5
				CFC-212	Hexachlorodifluoropropane (CFC-212)	$C_3F_2Cl_6$	134452-44-1
					1,1,1,3,3,3-Hexachloro-2,2-difluoropropane (HCFC-212)		3182-26-1
				CFC-213	Pentachlorotrifluoropropane (CFC-213)	$C_3F_3Cl_5$	134237-31-3
					1,1,1,3,3-Pentachloro-2,2,3-trifluoropropane (HCFC-213)		2354-06-5
				CFC-214	Tetrachlorotetrafluoropropane (CFC-214)	$C_3F_4Cl_4$	2268-46-4
					1,2,2,3-Tetrachloro-1,1,3,3-tetrafluoropropane (CFC-214aa)		29255-31-0
					1,1,1,3-Tetrachloro-2,2,3,3-tetrafluoropropane (CFC-214cb)		677-68-9
				CFC-215	Trichloropentafluoropropane (CFC-215)	$C_3F_5Cl_3$	1599-41-3
					1,2,2-Trichloro-1,1,3,3,3-pentafluoropropane (CFC-215aa)		1652-81-9
					1,2,3-Trichloro-1,1,2,3,3-pentafluoropropane (CFC-215ba)		4259-43-2
					1,1,2-Trichloro-1,2,3,3,3-pentafluoropropane (CFC-215bb)		76-17-5
					1,1,3-Trichloro-1,2,2,3,3-pentafluoropropane (CFC-215ca)		812-30-6
					1,1,1-Trichloro-2,2,3,3,3-pentafluoropropane (CFC-215cb)		
				CFC-216	Dichlorohexafluoropropane	$C_3F_6Cl_2$	661-97-2
							662-01-1
				CFC-217	Chloroheptafluoropropane (CFC-217)	C_3F_7Cl	422-86-6
					2-Chloro-1,1,1,2,3,3,3-heptafluoropropane (CFC-217ba)		76-18-6
					1-Chloro-1,1,2,2,3,3,3-heptafluoropropane (CFC-217ca)		
Ⅰ	B	Ⅱ	—	CFC-10	Carbon tetrachloride	CCl_4	56-23-5
Ⅰ	B	Ⅲ	—	—	1,1,1-Trichloroethane (1,1,2-Trichloroethane is excepted)	$C_2H_3Cl_3$	71-55-6
Ⅰ	C	Ⅲ	—	Halon-1011	Bromochloromethane	CH_2BrCl	74-97-5
Ⅰ	E	Ⅰ	—	Halon-1001	Methyl bromide	CH_3Br	74-83-9
					Bromomethane		
Ⅰ	C	Ⅱ	HBFC [Hydrobromofluorocarbon]				
				Halon-1102	Dibromofluoromethane (HBFC-21 B2)	$CHFBr_2$	1868-53-7
				Halon-1201	Bromodifluoromethane (HBFC-22 B1)	CHF_2Br	1511-62-2
				Halon-1101	Bromofluoromethane (HBFC-31 B1)	CH_2FBr	373-52-4
				Halon-2104	Tetrabromofluoroethane (HBFC-121 B4)	C_2HFBr_4	353-93-5
				Halon-2203	Tribromodifluoroethane (HBFC-122 B3)	$C_2HF_2Br_3$	353-97-9
					1,1,2-Tribromo-1,2-difluoroethane (CAS No 353-97-9)		677-34-9
					1,2,2-Tribromo-1,1-difluoroethane (CAS No 677-34-9)		7304-53-2
				Halon-2302	Dibromotrifluoroethane (HBFC-123 B2)	$C_2HF_3Br_2$	354-04-1
					1,2-Dibromo-1,1,2-trifluoroethane		
				Halon-2401	Bromotetrafluoroethane (HBFC-124B1)	C_2HF_4Br	124-72-1
					2-Bromo-1,1,1,2-trafluoroethane		
					1-Bromo-1,2,2,2-trafluoroethane		
				Halon-2103	Tribromofluoroethane (HBFC-131B3)	$C_2H_2FBr_3$	172912-75-3
					1,1,2-tribromo-1-fluoroethane (CAS No 420-88-2)		420-88-2
					1,1,2-tribromo-2-fluoroethane (CAS No 598-67-4)		598-67-4
				Halon-2202	Dibromodifluoroethane (HBFC-132 B2)	$C_2H_2F_2Br_2$	359-19-3
					1,2-Dibromo-1,1-difluoroethane (CAS No 75-82-1)		430-85-3
					1,1-Dibromo-2,2-difluoroethane (CAS No 359-19-3, 430-85-3)		75-82-1
				Halon-2301	Bromotrifluoroethane (HBFC-133B1)	$C_2H_2F_3Br$	421-06-7
					1-Bromo-2,2,2-trifluoroethane (HBFC-133a B1)(CAS No 421-06-7)		
					2-Bromo-1,1,1-trifluoroethane (HBFC-133a B1)(CAS No 421-06-7)		
				Halon-2102	Dibromofluoroethane (HBFC-141 B2)	$C_2H_3FBr_2$	358-97-4
					1,2-Dibromo-1-fluoroethane		
					1,2-Dibromo-2-fluoroethane		
				Halon-2201	Bromodifluoroethane (HBFC-142 B1)	$C_2H_3F_2Br$	359-07-9
					2-Bromo-1,1-difluoroethane		
				Halon-2101	Bromofluoroethane (HBFC-151 B1)	C_2H_4FBr	762-49-2
					1-Bromo-2-fluoroethane		
				Halon-3106	Hexabromofluoropropane (HBFC-221 B6)	C_3HFBr_6	
				Halon-3205	Pentabromodifluoropropane (HBFC-222 B5)	$C_3HF_2Br_5$	
				Halon-3304	Tetrabromotrifluoropropane (HBFC-223 B4)	$C_3HF_3Br_4$	
				Halon-3403	Tribromotetrafluoropropane (HBFC-224 B3)	$C_3HF_4Br_3$	666-48-8
				Halon-3502	Dibromopentafluoropropane (HBFC-225 B2)	$C_3HF_5Br_2$	431-78-7
					1,2-Dibromo-1,1,3,3,3-pentafluoropropane		
				Halon-3601	Bromohexafluoropropane (HBFC-226 B1)	C_3HF_6Br	2252-78-0
					1-Bromo-1,1,2,3,3,3-hexafluoropropane (CAS No 2252-78-0)		2252-79-1
					2-Bromo-1,1,1,3,3,3-hexafluoropropane (CAS No2252-79-1)		
				Halon-3105	Pentabromofluoropropane (HBFC-231 B5)	$C_3H_2FBr_5$	
				Halon-3204	Tetrabromodifluoropropane (HBFC-232 B4)	$C_3H_2F_2Br_4$	148875-98-3
					1,1,1,3-Tetrabromo-3,3-difluoropropane		
				Halon-3303	Tribromotrifluoropropane (HBFC-233 B3)	$C_3H_2F_3Br_3$	421-90-9
					2,2,3-Tribromo-1,1,1-trifluoropropane (CAS No 421-90-9)		431-48-1
				Halon-3402	Dibromotetrafluoropropane (HBFC-234 B2)	$C_3H_2F_4Br_2$	460-86-6
					1,3-Dibromo-1,1,3,3-tetrafluoropropane		

Montreal Protocol						
Class	Annex	Group	Sample substances		Chemical formula	Sample CAS No
			Halon-3501	Bromopentafluoropropane (HBFC-235 B1) 3-bromo-1,1,1,2,2-pentafluoropropane (CAS No 422-01-5) 1-bromo-1,1,3,3,3-pentafluoropropane (CAS No 460-88-8) 1-bromo-1,1,2,2,3-pentafluoropropane (CAS No 677-53-2) 1-bromo-1,2,2,3,3-pentafluoropropane (CAS No 679-94-7)	$C_3H_2F_5Br$	22692-16-6 26391-11-7 422-01-5 460-88-8 53692-43-6 53692-44-7 677-52-1 677-53-2 679-94-7
			Halon-3104	Tetrabromofluoropropane (HBFC-241 B4) 1,1,1,3-tetrabromo-3-fluoropropane	$C_3H_3FBr_4$	148875-95-0
			Halon-3203	Tribromodifluoropropane (HBFC-242 B3) 1,1,1-Tribromo-2,2-difluoropropane (CAS No 70192-80-2)	$C_3H_3F_2Br_3$	666-25-1 70192-80-2
			Halon-3302	Dibromotrifluoropropane (HBFC-243 B2) 2,3-Dibromo-1,1,1-trifluoropropane (CAS No 431-21-0) 1,3-Dibromo-1,1,3-trifluoropropane (CAS No 460-60-6)	$C_3H_3F_3Br_2$	431-21-0 460-60-6
			Halon-3401	Bromotetrafluoropropane (HBFC-244 B1) 2-Bromo-1,1,1,3-tetrafluoropropane (CAS No 29151-25-5) 3-Bromo-1,1,1,3-tetrafluoropropane (CAS No 460-67-3) 3-Bromo-1,1,2,2-tetrafluoropropane (CAS No 679-84-5) 1-Bromo-1,1,2,2-tetrafluoropropane (CAS No 70192-84-6)	$C_3H_3F_4Br$	19041-01-1 29151-25-5 460-67-3 679-84-5 70192-71-1 70192-84-6
			Halon-3103	Tribromofluoropropane (HBFC-251 B1) 1,2,3-Tribromo-1-fluoropropane	$C_3H_4FBr_3$	75372-14-4
			Halon-3202	Dibromodifluoropropane (HBFC-252 B2) 1,3-Dibromo-1,1-difluoropropane (CAS No 460-25-3)	$C_3H_4F_2Br_2$	460-25-3 51584-25-9
			Halon-3301	Bromotrifluoropropane (HBFC-253 B1) 3-Bromo-1,1,1-trifluoropropane (CAS No 460-32-2) 2-Bromo-1,1,1-trifluoropropane (CAS No 421-46-5)	$C_3H_4F_3Br$	421-46-5 460-32-2
			Halon-3102	Dibromofluoropropane (HBFC-261 B2) 1,3-Dibromo-2-fluoropropane (CAS No 1786-38-5) 1,2-Dibromo-3-fluoropropane (CAS No 453-00-9) 1,3-Dibromo-1-fluoropropane (CAS No 51584-26-0) 1,2-Dibromo-1-fluoro-(R*,R*)-propane (CAS No 62135-11-9) 1,2-Dibromo-1-fluoro-(R*,S*)-propane (CAS No 62135-10-8)	$C_3H_5FBr_2$	1786-38-5 453-00-9 51584-26-0 62135-10-8 62135-11-9
			Halon-3201	Bromodifluoropropane (HBFC-262 B1) 1-Bromo-2,3-difluoropropane (CAS No 111483-20-6) 2-Bromo-1,3-difluoropropane (CAS No 2195-05-3) 1-Bromo-2,2-difluoropropane (CAS No 420-98-4) 3-Bromo-1,1-difluoropropane (CAS No 461-49-4)	$C_3H_5F_2Br$	111483-20-6 2195-05-3 420-89-3 420-98-4 430-87-5 461-49-4
			Halon-3101	Bromofluoropropane (HBFC-271 B1) 1-Bromo-2-fluoropropane (CAS No 1871-72-3) 1-Bromo-3-fluoropropane (CAS No 352-91-0)	C_3H_6FBr	1871-72-3 352-91-0
Ⅱ	C	Ⅰ	HCFC [Hydrochlorofluorocarbon]			
			HCFC-21	Dichlorofluoromethane (*)	$CHFCl_2$ (*)	75-43-4
			HCFC-22	Chlorodifluoromethane (*)	CHF_2Cl (*)	75-45-6
			HCFC-31	Chlorofluoromethane	CH_2FCl	593-70-4
			HCFC-121	Tetrachlorofluoroethan (HCFC-121) 1,1,2,2-Tetrachloro-1-fluoroethan (HCFC-121) 1,1,1,2-Tetrachloro-2-fluoroethan (HCFC 121a)	C_2HFCl_4	134237-32-4 354-11-0 354-14-3
			HCFC-122	Trichlorodifluoroethane (HCFC-122) 1,2,2-Trichloro-1,1-difluoroethane (HCFC-122) 1,1,2-Trichloro-1,2-difluoroethane (HCFC-122a) 1,1,1-Trichloro-2,2-difluoroethane (HCFC-122b)	$C_2HF_2Cl_3$	354-12-1 354-15-4 354-21-2 41834-16-6 62549-18-2
			HCFC-123	Dichlorotrifluoroethane (HCFC-123) 2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123) (*) 1,2-Dichloro-1,1,2-trifluoroethane (HCFC-123a) 1,1-Dichloro-1,2,2-trifluoroethane (HCFC-123b)	$C_2HF_3Cl_2$ $CHCl_2CF_3$ (*)	306-83-2 34077-87-7 354-23-4 812-04-4 90454-18-5
			HCFC-124	Chlorotetrafluoroethane (HCFC-124) 2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124) (*) 1-Chloro-1,1,2,2-tetrafluoroethane (HCFC-124a)	C_2HF_4Cl $CHFClCF_3$ (*)	2837-89-0 354-25-6 63938-10-3
			HCFC-131	Trichlorofluoroethane (HCFC-131) 1,1,2-Trichloro-2-fluoroethane (HCFC-131) 1,1,2-Trichloro-1-fluoroethane (HCFC-131a) 1,1,1-Trichloro-2-fluoroethane (HCFC-131b)	$C_2H_2FCl_3$	134237-34-6 2366-36-1 27154-33-2 359-28-4 811-95-0
			HCFC-132	Dichlorodifluoroethane (HCFC-132) 1,2-Dichloro-1,2-difluoroethane (HCFC-132) 1,1-Dichloro-2,2-difluoroethane (HCFC-132a) 1,2-Dichloro-1,1-difluoroethane (HCFC-132b)	$C_2H_2F_2Cl_2$	1649-08-7 1842-05-3 25915-78-0 431-06-1 471-43-2
			HCFC-133	Chlorotrifluoroethane (HCFC-133) 1-Chloro-1,2,2-trifluoroethane (HCFC-133) 2-Chloro-1,1,1-trifluoroethane (HCFC-133a) 1-Chloro-1,1,2-trifluoroethane (HCFC-133b)	$C_2H_2F_3Cl$	1330-45-6 421-04-5 431-07-2 75-88-7
			HCFC-141 HCFC-141b (*)	Dichlorofluoroethane (HCFC-141) 1,2-Dichloro-1-fluoroethane (HCFC-141) 1,1-Dichloro-2-fluoroethane (HCFC-141a) 1,1-Dichloro-1-fluoroethane (HCFC-141b) (*)	$C_2H_3FCl_2$ CH_3CFCl_2 (*)	1717-00-6 25167-88-8 358-97-4 430-53-5 430-57-9
			HCFC-142 HCFC-142b (*)	Chlorodifluoroethane (HCFC-142) 2-Chloro-1,1-difluoroethane (HCFC-142) 1-Chloro-1,2-difluoroethane (HCFC-142a) 1-Chloro-1,1-difluoroethane (HCFC-142b)	$C_2H_3F_2Cl$ CH_3CF_2Cl (*)	25497-29-4 338-64-7 338-65-8 55949-44-5 75-68-3
			HCFC-151	Chlorofluoroethane (HCFC-151) 1-Chloro-2-fluoroethane (HCFC-151) 1-Chloro-1-fluoroethane (HCFC-151a)	C_2H_4FCl	762-50-5 1615-75-4 110587-14-9
			HCFC-221	Hexachlorofluoropropane (HCFC-221) 1,1,1,2,2,3-Hexachloro-3-fluoropropane (HCFC-221ab)	C_3HFCl_6	134237-35-7 29470-94-8 422-26-4
			HCFC-222	Pentachlorodifluoropropane (HCFC-222) 1,2,2,3,3-Pentachloro-1,1-difluoropropane (HCFC-222aa) 1,1,1,3,3-Pentachloro-2,2-difluoropropane (HCFC-222ca)	$C_3HF_2Cl_5$	116867-32-4 134237-36-8 422-30-0 422-49-1
			HCFC-223	Tetrachlorotrifluropropane (HCFC-223) 1,1,3,3-Tetrachloro-1,2,2-trifluropropane (HCFC-223ca) 1,1,1,3-Tetrachloro-2,2,3-trifluropropane (HCFC-223cb)	$C_3HF_3Cl_4$	134237-37-9 422-50-4 422-52-6
			HCFC-224	Trichlorotetrafluoropropane (HCFC-224) 1,3,3-Trichloro-1,1,2,2-tetrafluoropropane (HCFC-224ca) 1,1,3-Trichloro-1,2,2,3-tetrafluoropropane (HCFC-224cb) 1,1,1-Trichloro-2,2,3,3-tetrafluoropropane (HCFC-224cc)	$C_3HF_4Cl_3$	134237-38-0 422-51-5 422-53-7 422-54-8

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Class	Annex	Group	Sample substances		Chemical formula	Sample CAS No
			HCFC-225	Dichloropentafluoropropane (HCFC-225)	$C_3HF_5Cl_2$	111512-56-2
				2,2-Dichloro-1,1,1,3,3-pentafluoropropane (HCFC-225aa)		127564-92-5
				2,3-Dichloro-1,1,1,2,3-pentafluoropropane (HCFC-225ba)		128903-21-9
				1,2-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC-225bb)		13474-88-9
				3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca) (*)		136013-79-1
				1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb) (*)		422-44-6
				1,1-Dichloro-1,2,2,3,3-pentafluoropropane (HCFC-225cc)		422-48-0
				1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC-225da)		422-56-0
				1,3-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC-225ea)		431-86-7
				1,1-Dichloro-1,2,3,3,3-pentafluoropropane (HCFC-225eb)		507-55-1
			HCFC-226	Chlorohexafluoropropane (HCFC-226)	C_3HF_6Cl	134308-72-8
				2-Chloro-1,1,1,2,3,3-hexafluoropropane (HCFC-226ba)		28987-04-4
				3-Chloro-1,1,1,2,2,3-hexafluoropropane (HCFC-226ca)		359-58-0
				1-Chloro-1,1,2,2,3,3-hexafluoropropane (HCFC-226cb)		422-55-9
				2-Chloro-1,1,1,3,3,3-hexafluoropropane (HCFC-226da)		422-57-1
				1-Chloro-1,1,2,3,3,3-hexafluoropropane (HCFC-226ea)		431-87-8
						51346-64-6
			HCFC-231	Pentachlorofluoropropane (HCFC-231)	$C_3H_2FCl_5$	134190-48-0
				1,1,1,2,3-Pentachloro-2-fluoropropane (HCFC-231bb)		421-94-3
			HCFC-232	Tetrachlorodifluoropropane (HCFC-232)	$C_3H_2F_2Cl_4$	1112-14-7
				1,1,3,3-Tetrachloro-2,2-difluoropropane (HCFC-232ca)		134237-39-1
				1,1,1,3-Tetrachloro-2,2-difluoropropane (HCFC-232cb)		460-89-9
				1,1,1,3-Tetrachloro-3,3-difluoropropane (HCFC-232fc)		677-54-3
			HCFC-233	Trichlorotrifluoropropane (HCFC-233)	$C_3H_2F_3Cl_3$	13211-71-7
				1,1,3-Trichloro-2,2,3-trifluoropropane (HCFC-233ca)		131221-36-8
				1,1,3-Trichloro-1,2,2-trifluoropropane (HCFC-233cb)		134237-40-4
				1,1,1-Trichloro-2,2,3-trifluoropropane (HCFC-233cc)		421-99-8
				1,1,1-Trichloro-3,3,3-trifluoropropane (HCFC-233fb)		7125-83-9
			HCFC-234	Dichlorotetrafluoropropane (HCFC-234)	$C_3H_2F_4Cl_2$	127564-83-4
				2,2-Dichloro-1,1,3,3-tetrafluoropropane (HCFC-234aa)		146916-90-7
				2,2-Dichloro-1,1,1,3-tetrafluoropropane (HCFC-234ab)		149329-24-8
				1,2-Dichloro-1,2,3,3-tetrafluoropropane (HCFC-234ba)		149329-25-9
				2,3-Dichloro-1,1,1,2-tetrafluoropropane (HCFC-234bb)		17705-30-5
				1,2-Dichloro-1,1,2,3-tetrafluoropropane (HCFC-234bc)		4071-01-6
				1,3-Dichloro-1,2,2,3-tetrafluoropropane (HCFC-234ca)		425-94-5
				1,1-Dichloro-2,2,3,3-tetrafluoropropane (HCFC-234cb)		64712-27-2
				1,3-Dichloro-1,1,2,2-tetrafluoropropane (HCFC-234cc)		70192-63-1
				1,1-Dichloro-1,2,2,3-tetrafluoropropane (HCFC-234cd)		70341-81-0
				2,3-Dichloro-1,1,1,3-tetrafluoropropane (HCFC-234da)		76140-39-1
				1,2-ジクロロ-1,2,3,3-tetrafluoropropane (HCFC-234db)		
				1,3-ジクロロ-1,1,3,3-tetrafluoropropane (HCFC-234fa)		
				1,1-ジクロロ-1,3,3,3-tetrafluoropropane (HCFC-234fb)		
			HCFC-235	Chloropentafluoropropane (HCFC-235)	$C_3H_2F_5Cl$	108662-83-5
				1-Chloro-1,2,2,3,3-pentafluoropropane (HCFC-235ca)		134237-41-5
				3-Chloro-1,1,1,2,3-pentafluoropropane (HCFC-235cb)		134251-06-2
				1-Chloro-1,1,2,2,3-pentafluoropropane (HCFC-235cc)		28103-66-4
				2-Chloro-1,1,1,3,3-pentafluoropropane (HCFC-235da)		422-02-6
				1-Chloro-1,1,3,3,3-pentafluoropropane (HCFC-235fa)		460-92-4
						677-55-4
						679-99-2
			HCFC-241	Tetrachlorofluoropropane (HCFC-241)	$C_3H_3FCl_4$	134190-49-1
				1,1,2,3-Tetrachloro-1-fluoropropane (HCFC-241db)		666-27-3
			HCFC-242	Trichlorodifluoropropane (HCFC-242)	$C_3H_3F_2Cl_3$	127564-90-3
				1,3,3-Trichloro-1,1-difluoropropane (HCFC-242fa)		134237-42-6
						460-63-9
			HCFC-243	Dichlorotrifluoropropane (HCFC-243)	$C_3H_3F_3Cl_2$	116890-51-8
				1,3-Dichloro-1,2,2-trifluoropropane (HCF-243ca)		134237-43-7
				1,1-Dichloro-2,2,3-trifluoropropane (HCF-243cb)		149329-27-1
				1,1-Dichloro-1,2,2-trifluoropropane (HCF-243cc)		151771-08-3
				2,3-Dichloro-1,1,1-trifluoropropane (HCF-243da)		338-75-0
				2,3-Dichloro-1,1,1-trifluoropropane (HCF-243db)		460-69-5
				1,3-Dichloro-1,2,3-trifluoropropane (HCF-243ea)		67406-68-2
				1,3-Dichloro-1,1,2-trifluoropropane (HCF-243ec)		70192-70-0
				3,3-Dichloro-1,1,1-trifluoropropane (HCF-243fa)		7125-99-7
			HCFC-244	Chlorotetrafluoropropane (HCFC-244)	$C_3H_3F_4Cl$	117970-90-8
				2-Chloro-1,2,3,3-tetrafluoropropane (HCFC-244ba)		134190-50-4
				2-Chloro-1,1,1,2-tetrafluoropropane (HCFC-244bb)		19041-02-2
				3-Chloro-1,1,2,2-tetrafluoropropane (HCFC-244ca)		2730-64-5
				1-Chloro-1,2,2,3-tetrafluoropropane (HCFC-244cb)		421-73-8
				1-Chloro-1,1,2,2-tetrafluoropropane (HCFC-244cc)		421-75-0
				2-Chloro-1,1,3,3-tetrafluoropropane (HCFC-244da)		67406-66-0
				2-Chloro-1,1,1,3-tetrafluoropropane (HCFC-244db)		679-85-6
				3-Chloro-1,1,2,3-tetrafluoropropane (HCFC-244ea)		
				3-Chloro-1,1,1,2-tetrafluoropropane (HCFC-244eb)		
				1-Chloro-1,1,2,3-tetrafluoropropane (HCFC-244ec)		
				3-Chloro-1,1,1,3-tetrafluoropropane (HCFC-244fa)		
				1-Chloro-1,1,3,3-tetrafluoropropane (HCFC-244fb)		
			HCFC-251	Trichlorofluoropropane (HCFC-251)	$C_3H_4FCl_3$	134190-51-5
				1,1,2-Trichloro-1-fluoropropane (HCFC-251dc)		421-41-0
				1,1,3-Trichloro-1-fluoropropane (HCFC-251fb)		818-99-5
			HCFC-252	Dichlorodifluoropropane (HCFC-252)	$C_3H_4F_2Cl_2$	1112-01-2
				1,3-Dichloro-2,2-difluoropropane (HCFC-252ca)		1112-36-3
				1,1-Dichloro-2,2difluoropropane (HCFC-252cb)		134190-52-6
				1,2-Dichloro-1,1-difluoropropane (HCFC-252dc)		819-00-1
				1,1-Dichloro-1,2-difluoropropane (HCFC-252ec)		
				1,3-Dichloro-1,1-difluoropropane (HCFC-252fb)		
			HCFC-253	Chlorotrifluropropane (HCFC-253)	$C_3H_4F_3Cl$	134237-44-8
				2-Chloro-1,2,3-trifluropropane (HCFC-253ba)		26588-23-8
				2-Chloro-1,1,2-trifluropropane (HCFC-253bb)		460-35-5
				1-Chloro-2,2,3-trifluropropane (HCFC-253ca)		56758-54-4
				1-Chloro-1,2,2-trifluropropane (HCFC-253cb)		70192-76-6
				3-Chloro-1,1,2-trifluropropane (HCFC-253ea)		
				1-Chloro-1,2,3-trifluropropane (HCFC-253eb)		
				1-Chloro-1,1,2-trifluropropane (HCFC-253ec)		
				3-Chloro-1,3,3-trifluropropane (HCFC-253fa)		
				3-Chloro-1,1,1-trifluropropane (HCFC-253fb)		
				1-Chloro-1,1,3-trifluropropane (HCFC-253fc)		
			HCFC-261	Dichlorofluropropane (HCFC-261)	$C_3H_5FCl_2$	127404-11-9
				1,2-Dichloro-2-fluropropane (HCFC-261ba)		134237-45-9
				1,1-Dichloro-1-fluropropane (HCFC-261fc)		420-97-3
						7799-56-6

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Class	Annex	Group		Sample substances		Chemical formula	Sample CAS No
				HCFC-262	Chlorodifluropropane (HCFC-262)	$C_3H_5F_2Cl$	102738-79-4
					1-Chloro-2,2-difluropropane (HCFC-262ca)		134190-53-7
					2-Chloro-1,3-difluropropane (HCFC-262da)		420-99-5
					3-Chloro-1,1-difluropropane (HCFC-262fa)		421-02-3
					1-Chloro-1,3-difluropropane (HCFC-262fb)		
					1-Chloro-1,1-difluropropane (HCFC-262fc)		
				HCFC-271	Chlorofluoropropane (HCFC-271)	C_3H_6FCl	134190-54-8
					2-Chloro-2-fluoropropane (HCFC-271ba)		420-44-0
					2-Chloro-1-fluoropropane (HCFC-271d)		430-55-7
					1-Chloro-1-fluoropropane (HCFC-271fb)		

(*) The substance which has the strongest possibility of being used in commerce.

(*)The substance name and the other information like CAS No etc. listed in this table are examples from the contents which our company has investigated. These do not always cover all information. Some of the substances may be customarily called by a name of the article on behalf. For details, we hope that your company will confirm it by the information obtained from the upper stream of the supply chain.

Appendix 5. PFOS／PFOS relative compounds
〈Perfluorooctane sulfonates〉

rev.0/2013.02.28

No	Substance name	Examplary CAS No
1	2-Propenoic acid, 2-methyl-, polymers with Bu methacrylate, lauryl methacrylate and 2-[methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl methacrylate(PFOS)	127133-66-8
2	Sulphonamides, C4-8-alkane, perfluoro, N-methyl-N-(oxiranylmethyl)(PFOS)	129813-71-4
3	1-Octanesulphonamide, N-[3-(dimethylamino)propyl]-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS)	13417-01-1
4	2-Propenoic acid, 2-methyl-, 2- [[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl ester(PFOS)	14650-24-9
5	Fatty acids, C18-unsatd., trimers, 2-[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl esters(PFOS)	148240-78-2
6	Sulphonamides, C4-8-alkane, perfluoro, N-(hydroxyethyl)-N-methyl, reaction products with 1,6-diisocyanatohexane homopolymer and ethylene glycol(PFOS)	148684-79-1
7	Sulphonamides, C4-8-alkane, perfluoro, N-ethyl-N-(hydroxyethyl), reaction products with 2-ethyl-1-hexanol and polymethylenepolyphenylene isocyanate(PFOS)	160901-25-7
8	1-Propanaminium, 3-[[(heptadecafluorooctyl)sulphonyl]amino]-N,N,N-trimethyl-, iodide(PFOS)	1652-63-7
9	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-(PFOS)	1691-99-2
10	1-Octanesulphonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS); Perfluoroctane sulfonate acid	1763-23-1
11	1-Octanesulphonamide, N-[3-(dimethyloxidoamino)propyl]-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-,potassium salt(PFOS)	178094-69-4
12	Sulphonamides, C4-8-alkane, perfluoro, N-ethyl-N-(hydroxyethyl)-, polymers with 1,1'-methylenebis[4-isocyanatobenzene] and polymethylenepolyphenylene isocyanate, 2-ethylhexyl esters, Me Et ketone oxime-blocked(PFOS)	178535-22-3
13	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-methyl-, reaction products with benzene-chlorine-sulphur chloride (S2Cl2) reaction(PFOS)	182700-90-9
14	Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulphonyl]-, ethyl ester(PFOS)	1869-77-8
15	Sulphonamides, C4-8-alkane, perfluoro, N-[3-(dimethylamino)propyl], reaction products with acrylic acid(PFOS)	192662-29-6
16	1-Octanesulphonamide, N,N',N''- [phosphinylidynetris(oxy-2,1-ethanediyl)]tris[N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS)	2250-98-8
17	1-Octanesulphonamide, N-butyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-(PFOS)	2263-09-4
18	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-N-methyl-(PFOS)	24448-09-7
19	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-2-propenyl-(PFOS)	24924-36-5
20	1-Decanaminium, N-decyl-N,N-dimethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulphonic acid (1:1)(PFOS)	251099-16-8
21	2-Propenoic acid, 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl ester(PFOS)	25268-77-3
22	1-Octanesulphonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, potassium salt(PFOS); Perfluorooctane sulfonate potasium salt	2795-39-3

No	Substance name	Examplary CAS No
23	1-Octanesulphonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, ammonium salt(PFOS); Perfluorooctane sulfonate ammonium salt	29081-56-9
24	Poly(oxy-1,2-ethanediyl), alpha-[2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl]-omega-hydroxy-(PFOS)	29117-08-6
25	1-Octanesulphonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, lithium salt(PFOS); Perfluorooctane sulfonate lithium salt	29457-72-5
26	Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulphonyl]-(PFOS)	2991-50-6
27	Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulphonyl]-, potassium salt(PFOS)	2991-51-7
28	1-Octanesulphonamide, N-[3-(dimethyloxidoamino)propyl]-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS)	30295-51-3
29	1-Octanesulphonamide, N,N'-[phosphinicobis(oxy-2,1-ethanediyl)]bis[N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, ammonium salt(PFOS)	30381-98-7
30	Fatty acids, linseed-oil, dimers, 2- [[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl esters(PFOS)	306973-46-6
31	Sulphonamides, C4-8-alkane, perfluoro, N-(hydroxyethyl)-N-methyl, reaction products with 12-hydroxystearic acid and 2,4-TDI, ammonium salts(PFOS)	306973-47-7
32	Sulphonamides, C4-8-alkane, perfluoro, N-methyl-N-[(3-octadecyl-2-oxo-5-oxazolidinyl)methyl](PFOS)	306974-19-6
33	Siloxanes and Silicones, di-Me, mono[3-[(2-methyl-1-oxo-2-propenyl)oxy]propylgroup] -terminated, polymers with 2-[methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl acrylate and stearyl methacrylate(PFOS)	306974-28-7
34	Sulphonic acids, C6-8-alkane, perfluoro, compounds with polyethylene-polypropylene glycol bis(2-aminopropyl) ether(PFOS)	306974-45-8
35	Fatty acids, C18-unsatd.,dimers, 2-[methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino] ethyl esters(PFOS)	306974-63-0
36	Propanoic acid, 3-hydroxy-2- (hydroxymethyl)-2-methyl-, polymer with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol and N,N',2-tris(6-isocyanatohexyl)imidodicarbonic diamide, reaction products with N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafl(PFOS)	306975-56-4
37	Propanoic acid, 3-hydroxy-2-(hydroxymethyl)-2-methyl-, polymer with 1,1'-methylenebis[4-isocyanatobenzene] and 1,2,3-propanetriol, reaction products with Nethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-1-octanesulphon(PFOS)	306975-57-5
38	2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with 2- [methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl acrylate and vinylidene chloride(PFOS)	306975-62-2
39	Poly(oxy-1,2-ethanediyl), alpha-hydro-omega-hydroxy-, polymer with 1,6-diisocyanatohexane, N-(hydroxyethyl)-N-methyl perfluoro C4-8-alkane sulphonamidesblocked(PFOS)	306975-84-8
40	2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with N-(hydroxymethyl)-2-propenamide, 2-[methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl methacrylate, stearyl methacrylate and vinylidene chloride(PFOS)	306975-85-9

No	Substance name	Examplary CAS No
41	1-Hexadecanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, bromide, polymers with Bu acrylate, Bu methacrylate and 2-methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl acrylate(PFOS)	306976-25-0
42	2-Propenoic acid, 2-methyl-, 2-methylpropyl ester, polymer with 2,4-diisocyanato-1-methylbenzene, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol and 2-propenoic acid, N-ethyl-N-(hydroxyethyl)perfluoro-C4-8-alkanesulphonamides(PFOS)	306976-55-6
43	2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester, polymers with acrylic acid, 2-[methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl acrylate and propylene glycol monoacrylate, hydrolysed, compounds with 2,2'-(methylimino)bis(PFOS)	306977-58-2
44	2-Propenoic acid, butyl ester, polymers with acrylamide, 2-[methyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl acrylate and vinylidene chloride(PFOS)	306978-04-1
45	Hexane, 1,6-diisocyanato-, homopolymer, N-(hydroxyethyl)-N-methyl perfluoro-C4-8-alkane sulphonamides- and stearyl alc.-blocked(PFOS)	306978-65-4
46	Poly(oxy-1,2-ethanediyl), alpha-[2-(methylamino)ethyl]-omega-[(1,1,3,3-tetramethylbutyl)phenoxy]-, N-[(perfluoro-C4-8-alkyl)sulphonyl](PFOS)	306979-40-8
47	Sulphonamides, C4-8-alkane, perfluoro, N,N'-[1,6-hexanediylbis[(2-oxo-3,5-oxazolidinediyl)methylene]]bis[N-methyl-(PFOS)	306980-27-8
48	1-Octanesulphonyl fluoride, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS); Perfluoro-1-octanesulfonyl fluoride	307-35-7
49	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-methyl-(PFOS)	31506-32-8
50	2-Propenoic acid, 2-methyl-, 2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl ester(PFOS)	376-14-7
51	1-Propanaminium, 3-[[(heptadecafluorooctyl)sulphonyl]amino]-N,N',N''-trimethyl-, chloride(PFOS)	38006-74-5
52	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-[2-(phosphonooxy)ethyl]-(PFOS)	3820-83-5
53	2-Propenoic acid, 2-[butyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl ester(PFOS)	383-07-3
54	Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulphonyl]-, sodium salt(PFOS)	3871-50-9
55	Sodium perfluorooctanesulfonate	4021-47-0
56	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS)	4151-50-2
57	2-Propenoic acid, 2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl ester(PFOS)	423-82-5
58	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-2-propenyl-(PFOS)	423-86-9
59	Perfluoroctane sulfonate anion(PFOS)	45298-90-6
60	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(phenylmethyl)-(PFOS)	50598-29-3
61	Poly(oxy-1,2-ethanediyl), alpha-[2-[[(heptadecafluorooctyl)sulphonyl]propylamino]ethyl]-omega-hydroxy-(PFOS)	52550-45-5
62	Ethanaminium, N,N',N''-triethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulphonic acid (1:1)(PFOS); Tetraethylammoniumheptadecafluoroctansulfonate	56773-42-3

No	Substance name	Examplary CAS No
63	Benzoic acid, 2,3,4,5-tetrachloro-6-[[[3- [[(heptadecafluorooctyl)sulphonyl]oxy]phenyl]amino]carbonyl]-, monopotassium salt(PFOS)	57589-85-2
64	2-Propenoic acid, 4-[[(heptadecafluorooctyl)sulphonyl]methylamino]butyl ester(PFOS)	58920-31-3
65	2-Propenoic acid, 2-methyl-, 4-[[(heptadecafluorooctyl)sulphonyl]methylamino]butyl ester(PFOS)	61577-14-8
66	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-[3-(trimethoxysilyl)propyl]-(PFOS)	61660-12-6
67	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-[3-(trichlorosilyl)propyl]-(PFOS)	67939-42-8
68	1-Octanesulphonamide, N-[3-(dimethylamino)propyl]- 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, monohydrochloride(PFOS)	67939-88-2
69	1-Octanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-[2-(phosphonooxy)ethyl]-, diammonium salt(PFOS)	67969-69-1
70	Carbamic acid, (4-methyl-1,3-phenylene)bis-, bis[2-[ethyl[(perfluoro-C4-8-alkyl)sulphonyl]amino]ethyl] ester(PFOS)	68081-83-4
71	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(4-hydroxybutyl)-N-methyl-(PFOS)	68239-73-6
72	1-Propanaminium, 3-[[(heptadecafluorooctyl)sulphonyl](3-sulphopropyl)amino]-N-(2-hydroxyethyl)-N,N-dimethyl-, hydroxide, inner salt(PFOS)	68298-11-3
73	1-Propanaminium, 3-[[(heptadecafluorooctyl)sulphonyl]amino]-N,N',N''-trimethyl-, iodide, ammonium salt(PFOS)	68310-75-8
74	2-Propenoic acid, eicosyl ester, polymer with 2-[[(heptadecafluorooctyl)sulphonyl] methylamino]ethyl 2-propenoate, hexadecyl 2-propenoate, 2-[methyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2-[methyl[(pentadecafluoroheptyl)sulphonyl](PFOS)	68329-56-6
75	2-Propenoic acid, polymer with 2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate and octadecyl 2-propenoate(PFOS)	68541-80-0
76	2-Propenoic acid, butyl ester,polymer with 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl 2-propenoate, 2-methyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2-[methyl[(pentadecafluoroheptyl)sulphonyl]amino]ethyl 2-propenoate, 2-[meth(PFOS)	68555-90-8
77	2-Propenoic acid, 2-methyl-, 2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl ester, polymer with 2-[ethyl[(nonafluorobutyl)sulphonyl]amino] ethyl 2-methyl-2-propenoate, 2-[ethyl[(pentadecafluoroheptyl)sulphonyl]amino]ethyl 2-methyl-2-propeno(PFOS)	68555-91-9
78	2-Propenoic acid, 2-methyl-, 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl ester, polymer with 2-[methyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate, 2-[methyl[(pentadecafluoroheptyl)sulphonyl]amino]ethyl 2-methyl-2-(PFOS)	68555-92-0
79	Sulphonamides, C4-8-alkane, perfluoro, N-ethyl-N-(hydroxyethyl), reaction products with 1,1'-methylenebis[4-isocyanatobenzene](PFOS)	68608-14-0
80	N-(2-hydroxyethyl)-1-butanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoro-N-(2-hydroxyethyl)- 1-heptanesulphonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-N-(2-hydroxyethyl)-1-hexanesulphonamide, N-ethyl-1,1,2,(PFOS)	68649-26-3

No	Substance name	Examplary CAS No
81	2-Propenoic acid, 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl ester, polymer with 2-[methyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2-[methyl[(pentadecafluoroheptyl)sulphonyl]amino]ethyl 2-propenoate, 2- [methyl[(trideca(PFOS)	68867-60-7
82	2-Propenoic acid, 2-methyl-, 2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl ester, polymer with 2-[ethyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate,2-[ethyl[(pentadecafluoroheptyl)sulphonyl]amino]ethyl 2-methyl-2-prope(PFOS)	68877-32-7
83	Chromium, diaquatetrachloro[mu-[N-ethyl-N- [(heptadecafluorooctyl)sulphonyl] glycinato-kappaO:kappaO']]-mu-hydroxybis(2-methylpropanol)di-(PFOS)	68891-96-3
84	2-Propenoic acid, eicosyl ester, polymers with branched octylacrylate, 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl acrylate, 2-[methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate, 2-[methyl[(pentadecafluoroheptyl)sulphonyl]amino](PFOS)	68909-15-9
85	Poly(oxy-1,2-ethanediyl), alpha-[2-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]ethyl]-omega-methoxy-(PFOS)	68958-61-2
86	Bis(2-hydroxyethyl)ammonium perfluorooctanesulfonate	70225-14-8
87	2-Propenoic acid, 2-methyl-, octadecyl ester, polymer with 1,1-dichloroethene, 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl 2-propenoate, N-(hydroxymethyl)-2-propenamide, 2-[methyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2-(PFOS)	70776-36-2
88	1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, compd. with piperidine (1:1)	71463-74-6
89	Phosphonic acid, [3-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]propyl]-(PFOS)	71463-78-0
90	Phosphonic acid, [3-[ethyl[(heptadecafluorooctyl)sulphonyl]amino]propyl]-, diethyl ester(PFOS)	71463-80-4
91	2-Propenoic acid, 2-methyl-, methyl ester, polymer with ethenylbenzene, 2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethyl 2-propenoate, 2-[methyl[(nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2- [methyl[(pentadecafluoroheptyl)sulphonyl](PFOS)	71487-20-2
92	1-Octanesulphonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-(PFOS)	754-91-6
93	Magnesium bis[heptadecafluorooctanesulphonate]	91036-71-4
94	Sulphonamides, C4-8-alkane, perfluoro, N-(hydroxyethyl)-N-methyl, reaction products with epichlorohydrin, adipates (esters)(PFOS)	91081-99-1
95	Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, chloride, polymer with 2-ethoxyethyl 2-propenoate, 2-[[(heptadecafluorooctyl)sulphonyl] methylamino]ethyl 2-propenoate and oxiranylmethyl 2-methyl-2-(PFOS)	92265-81-1
96	1-Propanesulphonic acid, 3-[[3-(dimethylamino)propyl][(heptadecafluorooctyl) sulphonyl]amino]-2-hydroxy-, monosodium salt(PFOS)	94133-90-1
97	Carbamic acid, [5-[[[2-[[(heptadecafluorooctyl)sulphonyl]methylamino]ethoxy]carbonyl]amino]-2-methylphenyl]-, 9-octadecenyl ester, (Z)-(PFOS)	94313-84-5
98	Sulphonamides, C7-8-alkane, perfluoro, N-methyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl], polymers with 2-ethoxyethyl acrylate, glycidyl methacrylate and N,N,trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethanaminium chloride(PFOS)	98999-57-6
99	Perfluorooctane sulfonates(PFOS) $C_8F_{17}SO_2X$ (X = OH, Metal salt (O-M+), halide, amide, and other derivatives including polymers) [group]	JAMP-SN0035

Appendix 6:

REACH Annex XVII Restriction of placing on the market and use

*Refer the original text about the each restriction of use.

http://ec.europa.eu/enterprise/sectors/chemicals/reach/restrictions/index_en.htm

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No.	Chemical Name	Sample CAS No.	Main use of restriction	Maximum acceptable value
1	Poly chlorinated terphenyls (PCTs)	61788-33-8*	Substances, mixtures, including waste oils, or equipment	50ppm
2	Chloro-1-ethylene (monomer vinyl chloride)	75-01-4	Aerosols dispensers	Banning the use
3	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008:	—	Ornamental oil lamps, etc.	Banning the use
4	Tris(2,3-dibromopropyl)phosphate	126-72-7	Textile articles coming into contact with the skin.	Banning the use
5	Benzene	71-43-2	Substances or mixtures	1000ppm
			Toys	5ppm
6	Asbestos		The manufacture, placing on the market and use of these fibres and of articles and mixtures containing these fibres added intentionally is prohibited.	Bannning the manufactured or placing on the market or the use
	(a) Crocidolite	12001-28-4		
	(b) Amosite	12172-73-5		
	(c) Anthophylite asbestos	77536-67-5		
	(d) Actinolite asbestos	77536-66-4		
	(e) Tremolite asbestos	77536-68-6		
	(f) Chrysotile	12001-29-5 132207-32-0		
7	Tris-aziridinyl-phosphinoxide	545-55-1	Textile articles, come into contact with the skin.	Banning the use
8	Polybromobiphenyls (PBB)	59536-65-1	Textile articles, come into contact with the skin.	Banning the use
9	(a) Soap bark powder (Quillaja saponaria) and its derivatives containing saponines	68990-67-0	Mixtures or articles in amenity goods like sneezing powder and stink bombs	Banning the use (stink bombs : under 1.5ml)
	(b) Powder of the roots of Helleborus viridis and Helleborus niger	—		
	(c) Powder of the roots of Veratrum album and Veratrum nigrum	—		
	(d) benzidine and/or its derivatives	92-87-5		
	(e) o-nitrobenzaldehyde	552-89-6		
	(f) Wood powder	—		
10	(a) Ammonium sulphide	12135-76-1		
	(b) Ammonium hydrogen sulphide	12124-99-1		
	(c) Ammonium polysulphide	9080-17-5		
11	Volatile esters of bromoacetic acids			
	(a) Methyl bromoacetate	96-32-2		
	(b) Ethyl bromoacetate	105-36-2		
	(c) Propyl bromoacetate	35223-80-4		
	(d) Butyl bromoacetate	18991-98-5		
12	2-naphthylamine and its salts	91-59-8	Substances or mixtures	1000ppm
13	Benzidine and its salts	92-87-5		
14	4-nitrobiphenyl	92-93-3		
15	4-aminobiphenyl and its salts	92-67-1		
16	Lead carbons		Substances or mixtures, where the substance or mixture is intended for use as paint	Banning the use
	(a) Neutral anhydrous carbonate ($PbCO_{3)}$	598-63-0		
	(b) Trilead-bis(carbonate)-dihydroxide $2PbCO_3$-$Pb(OH)_2$	1319-46-6		
17	Lead sulphates			
	(a) Lead sulphates($PbSO_4$)	7446-14-2		
	(b) Lead sulphates($PbxSO_4$)	15739-80-7		

No.	Chemical Name	Sample CAS No.	Main use of restriction	Maximum acceptable value
18a	Mercury	7439-97-6	Fever thermometers, measuring devices including mercury	Banning the use (*) from 2014/4/10
18	Mercury compounds	—	boats and ships, equipment used for fish or shellfish farming, preservation of wood, the treatment of industrial waters, etc.	Banning the use
19	Arsenic compounds	—		
20	Organostannic compounds	—	Biocide ,the treatment of industrial waters	Banning the use
	Trisubstituted organostannic compounds Tributyltin (TBT) compounds, Triphrnyltin (TPT) compounds etc.	—	Articles	1000ppm of Sn
	Dibutyltyltin (DBT) compounds	—	Mixtures or articles	
	Dioctyltin (DOT) compounds	—	Articles intended to come into contact with the skin	
21	Di-μ-oxo-di-n-butylstanniohydroxyborane (DBB)	75113-37-0	Substances or mixtures	1000ppm
22	Pentachlorophenol and its esters	87-86-5	Substances or mixtures	1000ppm
23	Cadmium and its compounds	7440-43-9 etc.	Plastic, brazing fillers, jewelry goods, cadmium plating except special use	100ppm
			Paint	1000ppm
24	Monomethyl-tetrachloridiphenyl methane	76253-60-6	Substances, mixtures or articles containing the substance	Banning the use
25	Monomethyl-dichlorodiphenyl methane	—		
26	Monomethyl-dibromo-diphenyl methane	99688-47-8		
27	Nickel and its compounds	7440-02-0 etc.	The use intended to come into direct and prolonged contact with the skin (Discharge > 0.2μg/cm2/week)	Banning the use (0.2μg/cm2/week)
28	Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as carcinogen category 1A or 1B (Table 3.1) or carcinogen category 1 or 2 (Table 3.2) and listed as follows:	—	Supplies to the general public (As substances or in mixtures)	The concentration limit specified in Regulation (EC) No 1272/2008(CLP)
29	Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as germ cell mutagen category 1A or 1B (Table 3.1) or mutagen category 1 or 2 (Table 3.2) and listed as follows:	—		
30	Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as toxic to reproduction category 1A or 1B (Table 3.1) or toxic to reproduction category 1 or 2 (Table 3.2) and listed as follows:	—		
31	(a) Creosote ; wash oil	8001-58-9	Substances or mixtures where the substance or mixture is intended for the treatment of wood	Banning the use
	(b) Creosote oil	61789-28-4		
	(c) Distillates (coal tar), naphthalene oils	84650-04-4		
	(d) Creosote oil, acenaphthene fraction ; wash oil	90640-84-9		
	(e) Distillates (coal tar), upper ; heavy anthracene oil	65996-91-0		
	(f) Anthracene oil	90640-80-5		
	(g) Tar acids, coal, crude ; crude phenols	65996-85-2		
	(h) Creosote, wood	8021-39-4		
	(i) Low temperature tar oil, alkaline ; extract residues (coal), low temperature coal tar alkaline	122384-78-5		
32	Chloroform	67-66-3	Surface treatment , cleaner	1000ppm
33	(Missing number)	-		
34	1,1,2-trichloroethane	79-00-5		
35	1,1,2,2-tetrachloroethane	79-34-5		
36	1,1,1,2-tetrachloroethane	630-20-6		
37	Pentachloroethane	76-01-7		
38	1,1-dichloroethylene	75-35-4		
39	(Missing number)	-		
40	Substances meeting the criteria of flammability in Directive 67/548/EEC and classified as flammable, highly flammable or extremely flammable regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	—	Substances or mixtures in aerosol dispensers for the general public for entertainment and decorative purposes	Banning the use
41	Hexachloroethane	67-72-1	substance or mixtures where the substance or mixture is intended for the manufacturing or processing of non-ferrous metals	Banning the use
42	(Missing number)	-		

No.	Chemical Name	Sample CAS No.	Main use of restriction	Maximum acceptable value
43	Azo colourants and azo dyes (may release the aromatic amines listed in Appendix 8)	—	Articles intended to come into direct and prolonged contact with the skin (textile and leather articles)	30ppm
	4-aminoazobenzene	60-09-3		
	o-anisidine; 2-methoxyaniline	90-04-0		
	2-naphthylamine	91-59-8		
	3,3'-dichlorobenzidine; 3,3'-dichlorobiphenyl-4,4'-ylenediamine	91-94-1		
	4-aminobiphenyl	92-67-1		
	benzidine	92-87-5		
	o-toluidine; 2-aminotoluene	95-53-4		
	4-chloro-o-toluidine	95-69-2		
	4-methyl-m-phenylenediamine	95-80-7		
	o-aminoazotoluene; 4-amino-2',3-dimethylazobenzene; 4-o-tolylazo-o-toluidine	97-56-3		
	5-nitro-o-toluidine	99-55-8		
	2,2'-dichloro-4,4'-methylenedianiline; 4,4'-methylene bis(2-chloroaniline)	101-14-4		
	4,4'-diaminodiphenylmethane; 4,4'-methylenedianiline	101-77-9		
	4,4'-oxydianiline	101-80-4		
	4-chloroaniline	106-47-8		
	o-dianisidine; 3,3'-dimethoxybenzidine	119-90-4		
	4,4'-bi-o-toluidine; 3,3'-dimethylbenzidine	119-93-7		
	p-cresidine; 6-methoxy-m-toluidine	120-71-8		
	2,4,5-trimethylaniline	137-17-7		
	4,4'-thiodianiline	139-65-1		
	4-methoxy-m-phenylenediamine	615-05-4		
	4,4'-methylenedi-o-toluidine	838-88-0		
44	(Missing number)	-		
45	Diphenyl ether, octabromo derivative	-	Substances, mixtures or articles	1000ppm
46	(a) Nonylphenol	25154-52-3	Cleaner, etc.	1000ppm
	(b) Nonylphenol ethoxylatesノニルフェノールエトキシレート $(C_2H_4O)_nC_{15}H_{24}O$	—		
46a	Nonylphenol ethoxylates (NPE)	-	Textile articles after 2021/Feb/3	100ppm
47	Chromium VI compounds		Cement	2ppm of the total dry weight
			- Leather articles coming into contact with the skin - Articles containing leather parts coming into contact with the skin	3ppm of the total dry weight of the leather
48	Toluene	108-88-3	Adhesives or spray paints (for supply to the general public)	1000ppm
49	Trichlorobenzene	120-82-1	As substances, in mixtures	1000ppm
50	Polycyclic-aromatic hydrocarbons (PAH)	—	The production of tyres	1ppm(BaP) 10ppm(the total of PAH)
	(a) Benzo(a)pyrene (BaP)	50-32-8	Articles for supply to the general public, if any of their rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity （Apply after 27 December 2015）	1ppm
	(b) Benzo(e)pyrene (BeP)	192-97-2		
	(c) Benzo(a)anthracene (BaA)	56-55-3	Toys, including activity toys, and childcare article if any of their rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity （Apply after 27 December 2015）	0.5ppm
	(d) Chrysene (CHR)	218-01-9		
	(e) Benzo(b)fluoranthene (BbFA)	205-99-2		
	(f) Benzo(j)fluoranthene (BjFA)	205-82-3		
	(g) Benzo(k)fluoranthene (BkFA)	207-08-9		
	(h) Dibenzo(a, h)anthracene (DBAhA)	53-70-3		

No.	Chemical Name	Sample CAS No.	Main use of restriction	Maximum acceptable value
51	The following phthalates		Toys and childcare articles	1000ppm
	(a) Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7		
	(b) Dibutyl phthalate (DBP)	84-74-2		
	(c) Benzyl butyl phthalate (BBP)	85-68-7		
52	The following phthalates		Toys and childcare articles	1000ppm
	(a) Di-isononyl phthalate (DINP)	28553-12-0 68515-48-0		
	(b) Di-isodecyl phthalate (DIDP)	26761-40-0 68515-49-1		
	(c) Di-n-octyl phthalate (DNOP)	117-84-0		
53	(Missing number)	-		
54	2-(2-methoxyethoxy)ethanol (DEGME)	111-77-3	Paints, paint strippers, cleaning agents, self-shining emulsions or floor sealants	1000pm
55	2-(2-butoxyethoxy)ethanol (DEGBE)	112-34-5	Spray paints for supply to the general public, etc	30000ppm
56	Methylenediphenyl diisocyanate (MDI)	26447-40-5	Mixtures for supply to the general public	1000ppm
	including the following specific isomers			
	(a) 4,4'-Methylenediphenyl diisocyanate	101-68-8		
	(b) 2,4'-Methylenediphenyl diisocyanate	5873-54-1		
	(c) 2,2'-Methylenediphenyl diisocyanate	2536-05-2		
57	Cyclohexane	110-82-7	Adhesives	1000ppm
58	Ammonium nitrate (AN)	6484-52-2	Substances or in mixtures that contain more than 28 % by weight of nitrogen in relation to AN for use as a solid fertilizer	Banning the use
			Substances or in mixtures that contain more than 16 % by weight of nitrogen in relation to AN	Banning the use eccept agriculture or licensed user
59	Dichloromethane	75-09-2	Paint strippers	1000ppm
60	Acrylamide	79-06-1	Grouting applications	1000ppm
61	Dimethylfumarate (DMF)	624-49-7	Articles	0.1ppm
62	Phenylmercury compounds*			
	(a) Phenylmercury acetate	62-38-4	Articles	100ppm of mercury
	(b) Phenylmercury propionate	103-27-5	Mixtures	100ppm of mercury
	(c) Phenylmercury 2-ethylhexanoate	13302-00-6	Substances	Banning the use
	(d) Phenylmercury octanoate	13864-38-5	*After 10 October 2017	
	(e) Phenylmercury neodecanoate	26545-49-3		
63	Lead and its compounds	7439-92-1 —	Jewelry articles Articles or accessible parts thereof may, during normal or reasonably foreseeable conditions of use, be placed in the mouth by children.	500ppm
64	1,4-dichlorobenzene	106-46-7	- Substance or - Constituent of mixtures in a concentration equal to or greater than 1% by weight where the substance or the mixture is placed on the market for use or used as an air freshener or deodoriser in toilets, homes, offices or other indoor public areas.	Bannning the use or placing on the market
65	Inorganic ammonium salts	—	Cellulose insulation mixtures or cellulose insulation articles After 14 July 2018	Technical Specification CEN/TS 16516 the emission of ammonia from those mixtures or articles results in a concentration of less than 3 ppm by volume (2,12 mg/m3)
66	Bisphenol A	80-05-7	thermal paper After 2 January 2020	200ppm
67	**Bis(pentabromophenyl)ether (decabromodiphenyl ether; decaBDE)**	1163-19-5	Substance Another substance, as a constituent Mixture Article, or any part After 2 March 2019.	Bannning the manufactured or placing on the market 1000ppm

*Add a postscript to be plain though it was non-mention in the original

Appendix 7:

REACH-Annex XIV Authorisation and Candidate (SVHC) List

Note: Refer the URL below for detail. Attn: SVHC will be updated about every 6 months.

SVHC Candidate List → http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

Annex XIV authorisation List → http://echa.europa.eu/web/guest/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list

rev1.4/2017.09.21

List	No.	Chemical Name	Abbreviation or Chemical formula	Sample CAS No.	EC No.	Subject to the authorization (Sunset date)
1st	1	Anthracene	$C_{14}H_{10}$	120-12-7	204-371-1	
	2	4,4'-Diaminodiphenylmethane 4,4'-Methylenedianiline	$C_{13}H_{14}N_2$ MDA	101-77-9	202-974-4	● ('14/8)
	3	Dibutylphthalate (DBP)	$C_{16}H_{22}O_4$ DBP	84-74-2	201-557-4	● ('15/2)
	4	Cobalt Dichloride	$CoCl_2$	7646-79-9	231-589-4	
	5	Diarsenic pentaoxide	As_2O_5	1303-28-2	215-116-9	● ('15/5)
	6	Diarsenic Trioxide	As_2O_3	1327-53-3	215-481-4	● ('15/5)
	7	Sodium dichromate, dihydrate	$Cr_2Na_2O_7$-$2H_2O$ $Cr_2H_4Na_2O_9$	7789-12-0 10588-01-9	234-190-3	● ('17/9)
	8	5-tert-Butyl-2,4,6-trinitro-m-xylene (Musk xylene)	$C_{12}H_{15}N_3O_6$ Musk xylene	81-15-2	201-329-4	● ('14/8)
	9	Bis(2-ethylhexyl)phthalate Phthalic acid bis(2-ethylhexyl) Dioctyl phthalate	$C_{24}H_{38}O_4$ DEHP DOP	117-81-7	204-211-0	● ('15/2)
	10	Hexabromocyclododecane and all major diastereisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	$C_{12}H_{18}Br_6$ HBCDD (α-HBCDD, β-HBCDD, γ-HBCDD)	134237-50-6 134237-51-7 134237-52-8 25637-99-4 3194-55-6	247-148-4 221-695-9	● ('15/8)
	11	Alkanes, C10-13, chloro Short Chain Chlorinated Paraffins	SCCPs	85535-84-8	287-476-5	
	12	Bis(tributyltin)oxide (TBTO)	$C_{24}H_{54}OSn_2$ TBTO	56-35-9	200-268-0	
	13	Lead hydrogen arsenate	$AsHO_4Pb$	7784-40-9	232-064-2	
	14	Benzyl butyl phthalate (BBP)	$C_{19}H_{20}O_4$ BBP	85-68-7	201-622-7	● ('15/2)
	15	Triethyl arsenate	$C_6H_{15}AsO_4$	15606-95-8	427-700-2	
2nd	16	2,4-Dinitrotoluene	$C_7H_6N_2O_4$ 2,4-DNT	121-14-2	204-450-0	● ('15/8)
	17	Acrylamide	C_3H_5NO	79-06-1	201-173-7	
	18	Anthracene oil		90640-80-5	292-602-7	● ('20/10)
	19	Anthracene oil, anthracene paste, distn. Lights		91995-17-4	295-278-5	
	20	Anthracene oil, anthracene paste, anthracene fraction		91995-15-2	295-275-9	
	21	Anthracene oil, anthracene-low		90640-82-7	292-604-8	
	22	Anthracene oil, anthracene paste		90640-81-6	292-603-2	
	23	Diisobutyl phthalate	$C_{16}H_{22}O_4$ DIBP	84-69-5	201-553-2	● ('15/2)
	24	Lead chromate	CrO_4Pb	7758-97-6	231-846-0	● ('15/5)
	25	Lead chromate molybdate sulfate red Molybdate Red (C.I. Pigment Red 104)	C.I. Pigment Red 104	12656-85-8	235-759-9	● ('15/5)
	26	Lead sulfochromate yellow Chrome yellow (C.I. Pigment Yellow 34)	C.I. Pigment Yellow 34	1344-37-2	215-693-7	● ('15/5)
	27	Tris(2-chloroethyl)phosphate	$C_6H_{12}Cl_3O_4P$ TCEP	115-96-8	204-118-5	● ('15/8)
	28	Coal tar pitch, high temperature		65996-93-2	266-028-2	● ('20/10)
3rd	29	Trichloroethylene	C_2HCl_3 TCE	79-01-6	201-167-4	● ('16/4)
	30	Boric acid	BH_3O_3	10043-35-3 11113-50-1	233-139-2 234-343-4	
	31	Disodium tetraborate, anhydrous	$B_4Na_2O_7$	12179-04-3 1303-96-4 1330-43-4	215-540-4	
	32	Tetraboron disodium heptaoxide, hydrate	$B_4Na_2O_7$, xH2O	12267-73-1	235-541-3	
	33	Sodium chromate	$CrNa_2O_4$	7775-11-3	231-889-5	● ('17/9)
	34	Potassium chromate	CrK_2O_4	7789-00-6	232-140-5	● ('17/9)
	35	Ammonium dichromate	$Cr_2H_8N_2O_7$	7789-09-5	232-143-1	● ('17/9)
	36	Potassium dichromate	$Cr_2K_2O_7$	7778-50-9	231-906-6	● ('17/9)
4th	37	Cobalt(II) sulphate	CoO_4S	10124-43-3	233-334-2	
	38	Cobalt(II) dinitrate	CON_2O_6	10141-05-6	233-402-1	
	39	Cobalt(II) carbonate	$CCoO_3$	513-79-1	208-169-4	
	40	Cobalt(II) diacetate	$C_4H_6CoO_4$	71-48-7	200-755-8	
	41	2-Methoxyethanol Ethylene glycol monomethyl ether	$C_3H_8O_2$	109-86-4	203-713-7	
	42	2-Ethoxyethanol Ethylene glycol monoethyl ether	$C_4H_{10}O_2$	110-80-5	203-804-1	
	43	Chromium trioxide Chromic anhydride	CrO_3	1333-82-0	215-607-8	● ('17/9)
	44	Acids generated from chromium trioxide and their oligomers: -Chromic acid -Dichromic acid	CrH_2O_4 $Cr_2H_2O_7$	13530-68-2 7738-94-5	231-801-5 236-881-5	● ('17/9)
5th	4	Cobalt dicholride	Cl_2Co	7646-79-9	231-589-4	
	45	2-Ethoxyethyl acetate Ethylene glycol monoethyl ether acetate	$C_6H_{12}O_3$	111-15-9	203-839-2	
	46	Strontium chromate (C.I.Pigment yellow 32)	CrO_4Sr	7789-06-2	232-142-6	● ('19/1)
	47	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters Di(heptyl, nonyl, undecyl) phthalate (DHNUP)	DHNUP	68515-42-4	271-084-6	● ('20/7)
	48	Hydrazine	H_4N_2	302-01-2 7803-57-8	206-114-9	
	49	1-Methyl-2-pyrrolidone	C_5H_9NO	872-50-4	212-828-1	
	50	1,2,3-Trichloropropane	$C_3H_5Cl_3$	96-18-4	202-486-1	
	51	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich Diisoheptyl phthalate (DIHP)	DIHP	71888-89-6	276-158-1	● ('20/7)

List	No.	Chemical Name	Abbreviation or Chemical formula	Sample CAS No.	EC No.	Subject to the authorization (Sunset date)
6th	52	Lead dipicrate	$C_{12}H_4N_6O_{14}Pb$	6477-64-1	229-335-2	
	53	Lead styphnate 2,4,6-Trinitro-1,3-phenylenedioxylead(II) 2,4,6-Trinitroresorcinol lead salt	$C_6HN_3O_8Pb$	15245-44-0	239-290-0	
	54	Lead diazide	N_6Pb	13424-46-9	236-542-1	
	55	Phenolphthalein	$C_{20}H_{14}O_4$	77-09-8	201-004-7	
	56	2,2'-Dichloro-4,4'-methylenedianiline 4,4'-Methylene bis(2-chlorobenzenamine)	$C_{13}H_{12}Cl_2N_2$ MOCA	101-14-4	202-918-9	● ('17/11)
	57	N,N-Dimethylacetamide	C_4H_9NO DMAC	127-19-5	204-826-4	
	58	Trilead diarsenate	$As_2O_8Pb_3$	3687-31-8	222-979-5	
	59	Calcium arsenate	$As_2Ca_3O_8$	7778-44-1	231-904-5	
	60	Arsenic acid	AsH_3O_4	7778-39-4	231-901-9	● ('17/8)
	61	Bis(2-methoxyethyl) ether Diethylene glycol dimethyl ether	$C_6H_{14}O_3$	111-96-6	203-924-4	● ('17/8)
	62	1,2-Dichloroethane	$C_2H_4Cl_2$	107-06-2	203-458-1	● ('17/11)
	63	4-(1,1,3,3-Tetramethylbutyl)phenol, (4-tert-Octylphenol)	$C_{14}H_{22}O$	140-66-9	205-426-2	
	64	2-Methoxyaniline o-Anisidine	C_7H_9NO	90-04-0	201-963-1	
	65	Bis(2-methoxyethyl) phthalate	$C_{14}H_{18}O_6$	117-82-8	204-212-6	● ('20/7)
	66	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	$(C_6H_7N.CH_2O)x$ MDA	25214-70-4	500-036-1	● ('17/8)
	67	Zirconia Aluminosilicate Refractory Ceramic Fibres (Zr-RCF) a length less than 6 μm (Na2O+K2O+CaO+MgO+BaO) less or equal to 18%	Zr-RCF	—	(650-017-00-8*)	
	68	Aluminosilicate Refractory Ceramic Fibres (RCF) a length less than 6 μm (Na2O+K2O+CaO+MgO+BaO) less or equal to 18%	RCF	—	(650-017-00-8*)	
	69	Pentazinc chromate octahydroxide (C. I. Pigment Yellow 36)	$CrH_8O_{12}Zn_5$	49663-84-5	256-418-0	● ('19/1)
	70	Potassium hydroxyoctaoxodizincatedichromate Potassium zinc chromate hydroxide	$Cr_2HKO_9Zn_2$	11103-86-9	234-329-8	● ('19/1)
	71	Dichromium tris(chromate) Chromic acid,chromium(3+)salt(3:2)	Cr_5O_{12}	24613-89-6	246-356-2	● ('19/1)
7th	72	1,2-Bis(2-methoxyethoxy)ethane Triethylene glycol dimethyl ether［TEGDME, triglyme］	$C_8H_{18}O_4$ TEGME (triglyme)	112-49-2	203-977-3	
	73	1,2-Dimethoxyethane Ethylene glycol dimethyl ether ［EGDME］	$C_4H_{10}O_2$ EGDME	110-71-4	203-794-9	
	74	Diboron trioxide	B_2O_3	1303-86-2	215-125-8	
	75	Formamide	CH_3NO	75-12-7	200-842-0	
	76	Lead(II) bis(methanesulfonate)	$C_2H_6O_6PbS_2$	17570-76-2 95860-12-1	401-750-5	
	77	1,3,5-Tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione 1,3,5-Trisglycidylisocyanuric acid [TGIC]	$C_{12}H_{15}N_3O_6$ TGIC	2451-62-9	219-514-3	
	78	1,3,5-Tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione [β-TGIC]	$C_{12}H_{15}N_3O_6$ β-TGIC	59653-74-6	423-400-0	
	79	4,4'-Bis(dimethylamino)benzophenone [Michler's ketone] Bis[4-(dimethylamino)phenyl] ketone	$C_{17}H_{20}N_2O$ Micheler's ketone	90-94-8	202-027-5	
	80	N,N,N',N'-Tetramethyl-4,4'-methylenedianiline 4,4'-Bis(dimethylamino)diphenylmethane [Michler's base]	$C_{17}H_{22}N_2$ Micheler's base	101-61-1	202-959-2	
	81	[4-[4,4'-Bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride [C.I. Basic Violet 3]	$C_{25}H_{30}N_3Cl$ C.I. Basic Violet 3	548-62-9	208-953-6	
	82	[4-[[4-Anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride [C.I. Basic Blue 26]	$ClC_{33}H_{32}N_3$ C.I. Basic Blue 26	2580-56-5	219-943-6	
	83	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol [C.I. Solvent Blue 4]	$C_{33}H_{33}N_3O$ C.I. Solvent Blue 4	6786-83-0	229-851-8	
	84	4,4'-Bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] [C.I. Solvent Violet 8] Bis(4-dimethylaminophenyl)(4-methylaminophenyl)methanol α,α-Bis[4-(dimethylamino)phenyl]-4-(methylamino)benzenemethanol	$C_{24}H_{29}N_3O$ C.I. Solvent Violet 8	561-41-1	209-218-2	

List	No.	Chemical Name	Abbreviation or Chemical formula	Sample CAS No.	EC No.	Subject to the authorization (Sunset date)
	85	Bis(pentabromophenyl) ether Decabromodiphenylether	$C_{12}Br_{10}O$ DecaBDE	1163-19-5	214-604-9	
	86	Pentacosafluorotridecanoic acid Perfluorotridecanoic acid	$C_{13}HF_{25}O_2$	72629-94-8	276-745-2	
	87	Tricosafluorododecanoic acid Perfluorododecanoic acid	$C_{12}HF_{23}O_2$ PFUA	307-55-1	206-203-2	
	88	Henicosafluoroundecanoic acid	$C_{11}HF_{21}O_2$	2058-94-8	218-165-4	
	89	Heptacosafluorotetradecanoic acid Perfluorotetradecanoic acid	$C_{14}HF_{27}O_2$	376-06-7	206-803-4	
	90	4-(1,1,3,3-Tetramethylbutyl)phenol, ethoxylated *[covering well-defined substances and UVCB substances, polymers and homologues]*	(C14H22O他)	(140-66-9他)	(205-426-2他)	● ('21/1)
	91	4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB(*)- and well-defined substances which include any of the individual isomers or a combination thereof]	$C_{15}H_{24}O$	104-40-5 (84852-15-3他)	(284-325-5他)	
	92	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	$C_2H_4N_4O_2$	123-77-3	204-650-8	
	93	Cyclohexane-1,2-dicarboxylic anhydride [1] cis-cyclohexane-1,2-dicarboxylic anhydride [2] trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry] (Hexahydrophthalic anhydride - HHPA)	$C_8H_{10}O_3$ HHPA	13149-00-3 14166-21-3 85-42-7	201-604-9 236-086-3 238-009-9	
	94	Hexahydromethylphathalic anhydride [1], Hexahydro-4-methylphathalic anhydride [2], Hexahydro-1-methylphathalic anhydride [3], Hexahydro-3-methylphathalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	$C_9H_{12}O_3$	19438-60-9 25550-51-0 48122-14-1 57110-29-9	247-094-1, 243-072-0, 256-356-4, 260-566-1	
	95	Methoxy acetic acid	$C_3H_6O_3$	625-45-6	210-894-6	
	96	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	$C_{18}H_{26}O_4$	84777-06-0	284-032-2	● ('20/7)
	97	Diisopentylphthalate (DIPP)	$C_{18}H_{26}O_4$ DIPP	605-50-5	210-088-4	● ('20/7)
	98	N-Pentyl-isopentylphtalate	$C_{18}H_{26}O_4$	776297-69-9	-	● ('20/7)
	99	1,2-Diethoxyethane Ethylene glycol diethyl ether	$C_6H_{14}O_2$	629-14-1	211-076-1	
	100	N,N-Dimethylformamide; dimethyl formamide	C_3H_7NO DMF	68-12-2	200-679-5	
	101	Dibutyltin dichloride (DBT)	$C_8H_{18}Cl_2Sn$ DBT	683-18-1	211-670-0	
	102	Acetic acid, lead salt, basic	$C_2H_4O_3Pb$	51404-69-4	257-175-3	
	103	Basic lead carbonate Trilead bis(carbonate)dihydroxide	$C_2H_2O_8Pb_3$ White lead	1319-46-6	215-290-6	
	104	Lead oxide sulfate Basic lead sulfate	O_5Pb_2S	12036-76-9	234-853-7	
	105	[Phthalato(2-)]dioxotrilead Dibasic lead phthalate	$C_8H_4O_6Pb_3$	69011-06-9	273-688-5	
8th	106	Dioxobis(stearato)trilead	$C_{36}H_{70}O_6Pb_3$	12578-12-0	235-702-8	
	107	Fatty acids, C16-18, lead salts		91031-62-8	292-966-7	
	108	Lead bis(tetrafluoroborate)	B_2F_8Pb	13814-96-5	237-486-0	
	109	Lead cynamidate Lead cyanamide	CH_2N_2Pb	20837-86-9	244-073-9	
	110	Lead dinitrate	N_2O_6Pb	10099-74-8	233-245-9	
	111	Lead oxide (Lead monoxide)	OPb	1317-36-8	215-267-0	
	112	Lead tetraoxide (orange lead) Lead(II,IV) oxide	O_4Pb_3	1314-41-6	215-235-6	
	113	Lead titanium trioxide	O_3PbTi	12060-00-3	235-038-9	
	114	Lead Titanium Zirconium Oxide	$O_2PbTiZr$ PZT	12626-81-2	235-727-4	
	115	Pentalead tetraoxide sulphate	O_8Pb_5S	12065-90-6	235-067-7	
	116	Pyrochlore, antimony lead yellow (C.I. Pigment yellow 41)	C.I. Pigment Yellow 41	8012-00-8	232-382-1	
	117	Silicic acid, barium salt, lead-doped		68784-75-8	272-271-5	
	118	Silicic acid, lead salt		11120-22-2	234-363-3	
	119	Sulfurous acid, lead salt, dibasic	$H_2O_5Pb_2S$	62229-08-7	263-467-1	
	120	Tetraethyllead	$C_8H_{20}Pb$	78-00-2	201-075-4	
	121	Tetralead trioxide sulphate	O_7Pb_4S	12202-17-4	235-380-9	
	122	Trilead dioxide phosphonate	HO_5PPb_3	12141-20-7	235-252-2	
	123	Furan	C_4H_4O	110-00-9	203-727-3	
	124	Propylene oxide; 1,2-Epoxypropane; Methyloxirane	C_3H_6O	75-56-9	200-879-2	
	125	Diethyl sulphate	$C_4H_{10}O_4S$ DES	64-67-5	200-589-6	
	126	Dimethyl sulphate	$C_2H_6O_4S$	77-78-1	201-058-1	
	127	3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	$C_{11}H_{23}NO$	143860-04-2	421-150-7	
	128	Dinoseb 6-sec-Butyl-2,4-dinitrophenol	$C_{10}H_{12}N_2O_5$ DNSBP	88-85-7	201-861-7	
	129	4,4'-Methylenedi-o-toluidine 3,3'-Dimethyl-4,4'-diaminodiphenylmethane	$C_{15}H_{18}N_2$ MBOT	838-88-0	212-658-8	
	130	4,4'-Oxydianiline and its salts 4,4'-Diaminodiphenyl ether	$C_{12}H_{12}N_2O$ DADPE	101-80-4	202-977-0	
	131	4-Aminoazobenzene; 4-Phenylazoaniline	$C_{12}H_{11}N_3$	60-09-3	200-453-6	
	132	4-Methyl-m-phenylenediamine 2,4-Toluenediamine	$C_7H_{10}N_2$	95-80-7	202-453-1	
	133	6-Methoxy-m-toluidine 2-Methoxy-5-methylaniline p-Cresidine	$C_8H_{11}NO$	120-71-8	204-419-1	

List	No.	Chemical Name	Abbreviation or Chemical formula	Sample CAS No.	EC No.	Subject to the authorization (Sunset date)
	134	4-Aminobiphenyl Xenylamine Biphenyl-4-ylamine	$C_{12}H_{11}N$ 4-ABP	92-67-1	202-177-1	
	135	o-Aminoazotoluene 4-Amino-2',3-dimethylazobenzene 4-o-Tolylazo-o-toluidine	$C_{14}H_{15}N_3$	97-56-3	202-591-2	
	136	o-Toluidine; 2-Aminotoluene	C_7H_9N	95-53-4	202-429-0	
	137	N-Methylacetamide	C_3H_7NO	79-16-3	201-182-6	
	138	1-Bromopropane; n-Propyl bromide	C_3H_7Br	106-94-5	203-445-0	● ('20/7)
9th	139	Cadmium	Cd	7440-43-9	231-152-8	
	140	Cadmium oxide	CdO	1306-19-0	215-146-2	
	141	Dipentyl phthalate (DPP)	$C_{18}H_{26}O_4$	131-18-0	205-017-9	● ('20/7)
	142	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	$(C_2H_4O)nC_{15}H_{24}O$, with n≥1	-	-	● ('21/1)
	143	Ammonium pentadecafluorooctanoate (APFO)	$C_8H_4F_{15}NO_2$	3825-26-1	223-320-4	
	144	Pentadecafluorooctanoic acid (PFOA)	$C_8HF_{15}O_2$	335-67-1	206-397-9	
10th	145	Cadmium sulphide	CdS	1306-23-6	215-147-8	
	146	Dihexyl phthalate (DnHP)	$C_{20}H_{30}O_4$	84-75-3	201-559-5	
	147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	$C_{32}H_{24}N_6O_6S_2.2Na$	573-58-0	209-358-4	
	148	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	$C_{34}H_{25}N_9Na_2O_7S_2$	1937-37-7	217-710-3	
	149	Imidazolidine-2-thione; 2-imidazoline-2-thiol	$C_3H_6N_2S$	96-45-7	202-506-9	
	150	Lead di(acetate)	$C_4H_6O_4Pb$	301-04-2	206-104-4	
	151	Trixylyl phosphate	$C_{24}H_{27}O_4P$	25155-23-1	246-677-8	
11th	152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear (DIHP)	$C_{20}H_{30}O_4$	68515-50-4	271-093-5	
	153	Cadmium chloride	$CdCl_2$	10108-64-2	233-296-7	
	154	Sodium perborate Perboric acid, sodium salt	$BH_3O_4.Na$ etc.	15120-21-5 11138-47-9	239-172-9 234-390-0	
	155	Sodium peroxometaborate	$BO_3.Na$	7632-04-4	231-556-4	
12th	156	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	$C_{22}H_{29}N_3O$	25973-55-1	247-384-8	
	157	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	$C_{20}H_{25}N_3O$	3846-71-7	223-346-6	
	158	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	$C_{36}H_{72}O_4S_2Sn$	15571-58-1	239-622-4	
	159	Cadmium fluoride	CdF_2	7790-79-6	232-222-0	
	160	Cadmium sulphate	$Cd.H_2O_4S$	10124-36-4; 31119-53-6	233-331-6	
	161	Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE) (*)As the identification and naming of substances by ECHA, "Reaction mass" means the multi-constituent substance (mixture)	$C_{36}H_{72}O_4S_2Sn$ $C_{38}H_{74}O_6S_3Sn$	-	-	
13th	162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5)	-	68515-51-5 68648-93-1	271-094-0 272-013-1	
	163	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof]	$C_{17}H_{30}O_2$	-	-	
14th	164	1,3-propanesultone	$C_3H_6O_3S$	1120-71-4	214-317-9	
	165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	$C_{20}H_{24}ClN_3O$	3864-99-1	223-383-8	
	166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	$C_{20}H_{25}N_{3O}$	36437-37-3	253-037-1	
	167	Nitrobenzene	$C_6H_5NO_2$	98-95-3	202-716-0	
	168	Perfluorononan-1-oic-acid and its sodium and ammonium salts	$C_9HF_{17}O_2$	375-95-1 21049-39-8 4149-60-4	206-801-3	
15th	169	Benzo[def]chrysene (Benzo[a]pyrene)	$C_{20}H_{12}$	50-32-8	200-028-5	

List	No.	Chemical Name	Abbreviation or Chemical formula	Sample CAS No.	EC No.	Subject to the authorization (Sunset date)
16th	170	4,4'-isopropylidenediphenol (Bisphenol A; BPA)	$C_{15}H_{16}O_2$	80-05-7	201-245-8	
	171	4-heptylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	-	-	-	
	172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	$C_{10}H_4F_{19}NO_2$ $C_{10}HF_{19}NO_2$ $C_{10}F_{19}NaO_2$	3108-42-7 335-76-2 3830-45-3	221-470-5 206-400-3 —	
	173	p-(1,1-dimethylpropyl)phenol	$C_{11}H_{16}O$	80-46-6	201-280-9	
17th	174	Perfluorohexane-1-sulphonic acid and its salts	$C_6HF_{13}O_3S$	355-46-4	206-587-1	

* The date in the ( ) is the sunset date.
The deadline of application for authorisation is 18 months before
*UVCB
Substances of Unknown or Variable composition, Complex reaction products or Biological materials

Appendix 8. List of aromatic amines

rev.0/2013.02.28

No.	Substance Name	CAS No
1	4-Aminoazobenzene 4-Phenylazoaniline	60-09-3
2	2-Methoxyaniline o-Anisidine	90-04-0
3	2-Naphthylamine	91-59-8
4	3,3'-Dichlorobenzidine 3,3'-Dichlorobiphenyl-4,4'-diamine	91-94-1
5	4-Aminobiphenyl Xenylamine Biphenyl-4-ylamine	92-67-1
6	Benzidine 4,4'-Biphenyldiamine 4,4'-Diaminobiphenyl	92-87-5
7	o-Toluidine 2-Aminotoluene	95-53-4
8	4-Chloro-o-toluidine	95-69-2 [1] 3165-93-3 [2]
9	4-Methyl-m-phenylenediamine 2,4-Toluenediamine	95-80-7
10	o-Aminoazotoluene 4-Amino-2',3-dimethylazobenzene 4-o-Tolylazo-o-toluidine	97-56-3
11	5-Nitro-o-toluidone 2-Amino-4-nitrotoluene	99-55-8 [1] 51085-52-0 [2]
12	2,2'-Dichloro-4,4'-methylene-dianiline 4,4'-Methylene-bis-(2-chloro-aniline)	101-14-4
13	4,4'-Diaminodiphenylmethane 4,4'-Methylenedianiline	101-77-9
14	4,4'-Oxydianiline 4,4'-Diaminodiphenylether	101-80-4
15	4-Chloroaniline p-Chloroaniline	106-47-8
16	3,3'-Dimethoxybenzidine o-Dianisidine	119-90-4
17	4,4'-Bi-o-toluidine 3,3'-Dimethylbenzidine	119-93-7
18	6-Methoxy-m-toluidine 2-Methoxy-5-methylaniline p-Cresidine	120-71-8
19	2,4,5-Trimethylaniline	137-17-7 [1] 21436-97-5 [2]
20	4,4'-Thiodianiline 4,4'-Diaminodiphenyl sulfide	139-65-1
21	2,4-Diaminoanisole 4-Methoxy-m-phenylenediamine	615-05-4 [1] 39156-41-7 [2]
22	4,4'-Methylenedi-o-toluidine 3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0

	No.	Substance Name	CAS No
*	23	2,6-Xylidine 2,6-Dimethylaniline	87-62-7
*	24	2,4-Xylidine 2,4-Dimethylaniline	95-68-1

*: Although these substances are not subject to the Restriction of REACH regulation in EU, they are applicable in China and South Korea.

Appendix 9. List of Hexabromocyclododecane（HBCD or HBCDD）

rev.1.0/2015.10.1

No.	Substance Name	CAS No
1	Alpha-hexabromocyclododecane; rel-(1R,2R,5S,6R,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane	134237-50-6
2	Beta-hexabromocyclododecane; rel-(1R,2S,5R,6R,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane	134237-51-7
3	Gamma-hexabromocyclododecane; rel-(1R,2R,5R,6S,9S,10R)-1,2,5,6,9,10-Hexabromocyclododecane	134237-52-8
4	(1R,2R,5R,6S,9S,10S)-1,2,5,6,9,10-Hexabromocyclododecane	138257-17-7
5	(1R,2R,5R,6S,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane	138257-18-8
6	(1R,2S,5S,6R,9S,10S)-1,2,5,6,9,10-Hexabromocyclododecane	138257-19-9
7	(1R,2S,5S,6S,9S,10R)-1,2,5,6,9,10-Hexabromocyclododecane	169102-57-2
8	Hexabromocyclododecane	25637-99-4
9	1,2,5,6,9,10-hexabromocyclododecane	3194-55-6
10	rel-(1R,2S,5R,6S,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane	4736-49-6
11	rel-(1R,2S,5R,6S,9S,10R)-1,2,5,6,9,10-Hexabromocyclododecane	65701-47-5
12	(1R,2R,5S,6R,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane	678970-15-5
13	(1R,2S,5R,6S,9S,10S)-1,2,5,6,9,10-Hexabromocyclododecane	678970-16-6
14	(1R,2R,5R,6S,9S,10R)-1,2,5,6,9,10-Hexabromocyclododecane	678970-17-7

Appendix 10. List of Perfluorooctanoic acid (PFOA) and its salts and its esters

rev.1.0/2015.10.1

No.	Substance Name	CAS No
1	Perfluorooctanoic acid (PFOA)	335-67-1
2	Perfluorooctanoic acid ammonium salt	3825-26-1
3	Perfluorooctanoic acid sodium salt	335-95-5
4	Perfluorooctanoic acid potassium salt	2395-00-8
5	Perfluorooctanoic acid silver salt	335-93-3
6	Perfluorooctanoic acid fluoride	335-66-0
7	Perfluorooctanoic acid methyl ester	376-27-2
8	Perfluorooctanoic acid ethyl ester	3108-24-5