

## Schedule.1 REACH Candidate List of Substances of Very High Concern for Authorisation

AT level / P: Prohibit, C: Control

(Related standard: AT Group Environmental Quality Standards for Products Ed.5.0 ATQA02A0001e)

No.	AT level	Substance name	CAS.No.	Example of use	Date of inclusion	EC No.	
R01		Anthracene	120-12-7	Dye, Catalyzer	2008/10/28	204-371-1	
R02		4,4'-Diaminodiphenylmethane	MDA 101-77-9	Epoxy resin hardener		202-974-4	
R03	C	Dibutyl phthalate	DBP 84-74-2	Plasticizer		201-557-4	
R04	P	Cobalt dichloride	7646-79-9	Desiccant, Lubricant		231-589-4	
R05		Diarsenic pentaoxide	1303-28-2	Glass		215-116-9	
R06		Diarsenic trioxide	1327-53-3	Glass		215-481-4	
R07	P	Sodium dichromate	10588-01-9 7789-12-0	Pigment, Dye		234-190-3	
R08		5-tert-butyl-2,4,6-trinitro-m-xylene [musk xylene]	81-15-2	Fragrance		201-329-4	
R09	C	Bis(2-ethylhexyl)phthalate	DEHP 117-81-7	Plasticizer		204-211-0	
R10		Hexabromocyclododecane and all major diastereoisomers identified	HBCDD 3194-55-6 25637-99-4	Flame retardant		247-148-4 221-695-9	
R11	P	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	SCCP 85535-84-8	Lubricant, Flame retardant, Plasticizer		287-476-5	
R12	P	Bis(tributyltin)oxide	TBTO 56-35-9	Fungicide		200-268-0	
R13	P	Lead hydrogen arsenate	7784-40-9	Wood preservative		232-064-2	
R14	C	Benzyl butyl phthalate	BBP 85-68-7	Plasticizer		201-622-7	
R15		Triethyl arsenate	15606-95-8	Semiconductor		427-700-2	
R16		Anthracene oil	90640-80-5	Carbon black	2010/1/13	292-602-7	
R17		Anthracene oil, anthracene paste, distn. lights	91995-17-4	Carbon black		295-278-5	
R18		Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	Carbon black		295-275-9	
R19		Anthracene oil, anthracene-low	90640-82-7	Carbon black		292-604-8	
R20		Anthracene oil, anthracene paste	90640-81-6	Carbon black		292-603-2	
R21		Pitch, coal tar, high temp.	65996-93-2	Technical electrode		266-028-2	
R22		2,4-Dinitrotoluene	121-14-2	Fungicide, Synthetic intermediate		204-450-0	
R23	C	Diisobutyl phthalate	DIBP 84-69-5	Plasticizer		201-553-2	
R24	P	Lead chromate	7758-97-6	Pigment, Paint		231-846-0	
R25	P	Lead chromate molybdate sulphate red [C.I. Pigment Red 104]	12656-85-8	Pigment, Paint		235-759-9	
R26	P	Lead sulfochromate yellow [C.I. Pigment Yellow 34]	1344-37-2	Pigment, Paint	215-693-7		
R27		Tris(2-chloroethyl)phosphate	TCEP 115-96-8	Flame retardant, Plasticizer	204-118-5		
R28		Acrylamide	79-06-1	Adhesive, Paper strength enhancer	2010/3/30	201-173-7	
R29		Trichloroethylene	79-01-6	Cleaning, Degreasing	2010/6/18	201-167-4	
R30		Boric acid	10043-35-3 11113-50-1	Flame retardant, Paint, Fireproofing agent, Antiseptic		233-139-2 234-343-4	
R31		Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3	Flame retardant, Adhesive		215-540-4	
R32		Tetraboron disodium heptaoxide, hydrate	12267-73-1	Flame retardant, Adhesive		235-541-3	
R33	P	Sodium chromate	7775-11-3	Chromium compounds production		231-889-5	
R34	P	Potassium chromate	7789-00-6	Pigment, Ink		232-140-5	
R35	P	Ammonium dichromate	7789-09-5	CRT production		232-143-1	
R36	P	Potassium dichromate	7778-50-9	photolithography		231-906-6	
R37		Cobalt(II) sulphate	10124-43-3	Manufacture of other chemical		2010/12/15	233-334-2
R38		Cobalt(II) dinitrate	10141-05-6	Manufacture of other chemical			233-402-1
R39		Cobalt(II) carbonate	513-79-1	Manufacture of catalyst	208-169-4		
R40		Cobalt(II) diacetate	71-48-7	Manufacture of catalyst	200-755-8		
R41		2-Methoxyethanol	EGME 109-86-4	Chemical intermediate, Solvent	203-713-7		
R42		2-Ethoxyethanol	EGEE 110-80-5	Chemical intermediate, Solvent	203-804-1		
R43	P	Chromium trioxide	1333-82-0	Metal finishing, Wood preservative	215-607-8		
R44	P	Acids generated from chromium trioxide and their oligomers • Chromic acid • Dichromic acid • Oligomers of chromic acid and dichromic acid	7738-94-5 13530-68-2 -	Metal finishing, Wood preservative	231-801-5 236-881-5 -		
R45		2-ethoxyethyl acetate	111-15-9	Solvent, Paint	2011/6/20	203-839-2	
R46	P	strontium chromate	7789-06-2	Coating, Paint		232-142-6	
R47		1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	DHNUP 68515-42-4	Plasticizer		271-084-6	
R48		Hydrazine	302-01-2 7803-57-8	Rocket fuel, Reducing agent		206-114-9	
R49		1-methyl-2-pyrrolidone	872-50-4	Coating, Paint		212-828-1	
R50		1,2,3-trichloropropane	96-18-4	Solvent, Paint		202-486-1	
R51		1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	DIHP 71888-89-6	Plasticizer		276-158-1	
R52	P	Dichromium tris(chromate)	24613-89-6	Metal surface treatment		2011/12/19	246-356-2
R53		Potassium hydroxyoctaoxodizincatedichromate	11103-86-9	Coating		234-329-8	
R54		Pentazinc chromate octahydroxide	49663-84-5	Coating		256-418-0	

No.	AT level	Substance name	CAS.No.	Example of use	Date of inclusion	EC No.	
R55		Aluminosilicate Refractory Ceramic Fibres	RCF	-	High-temperature insulation	2011/12/19	-
R56		Zirconia Aluminosilicate Refractory Ceramic Fibres	Zr-RCF	-	High-temperature insulation		-
R57		Formaldehyde, oligomeric reaction products with aniline (technical MDA)		25214-70-4	Synthetic intermediate, Hardener		500-036-1
R58		Bis(2-methoxyethyl) phthalate	DMEP	117-82-8	Plasticiser		204-212-6
R59		2-methoxyaniline [o-anisidine]		90-04-0	Dye intermediate		201-963-1
R60		4-(1,1,3,3-tetramethylbutyl)phenol [4-tert-octylphenol]		140-66-9	Phenolic resin raw material, Surfactant		205-426-2
R61		1,2-dichloroethane		107-06-2	Synthetic raw material, Solvent		203-458-1
R62		Bis(2-methoxyethyl) ether		111-96-6	Reaction solvent, Battery electrolyte		203-924-4
R63		Arsenic acid		7778-39-4	Fining agent, Manufacture of semiconductor		231-901-9
R64		Calcium arsenate		7778-44-1	Precipitant in metal smelting		231-904-5
R65	P	Trilead diarsenate		3687-31-8	Refinement raw material		222-979-5
R66		N,N-dimethylacetamide	DMAC	127-19-5	Solvent, Industrial coating, Insulation paper, Polyimide film		204-826-4
R67		2,2'-dichloro-4,4'-methylenedianiline	MOCA	101-14-4	Resin curing agent		202-918-9
R68		Phenolphthalein		77-09-8	Indicator		201-004-7
R69	P	Lead diazide [Lead azide]		13424-46-9	Detonator		236-542-1
R70	P	Lead styphnate		15245-44-0	Primer, Detonator		239-290-0
R71	P	Lead dipicrate		6477-64-1	Detonator		229-335-2
R72		1,2-bis(2-methoxyethoxy)ethane [triglyme]	TEGDME	112-49-2	Solvent, Manufacture of chemicals	2012/6/18	203-977-3
R73		1,2-dimethoxyethane [ethylene glycol dimethyl ether]	EGDME	110-71-4	Solvent, Manufacture of chemicals		203-794-9
R74		Diboron trioxide		1303-86-2	Adhesive, Ink, Paint		215-125-8
R75		Formamide		75-12-7	Intermediate in the manufacture of chemicals		200-842-0
R76	P	Lead(II) bis(methanesulfonate)		17570-76-2	Plating process for electronic components		401-750-5
R77		1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	TGIC	2451-62-9	Hardener in resins and coatings		219-514-3
R78		1,3,5-tris[[2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	$\beta$ -TGIC	59653-74-6	Electrical insulation material (silk screen printing, coating, adhesive)		423-400-0
R79		4,4'-bis(dimethylamino)benzophenone [Michler's ketone]		90-94-8	Intermediate in the manufacture of triphenylmethane dyes and other substances		202-027-5
R80		N,N,N',N'-tetramethyl-4,4'-methylenedianiline [Michler's base]		101-61-1	Intermediate in the manufacture of dyes and other substances		202-959-2
R81		[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride [C.I. Basic Blue 26]		2580-56-5	Ink, Coating, Colouring of paper and packaging, textiles, plastic products		219-943-6
R82		[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride [C.I. Basic Violet 3]		548-62-9	Paper colouring, Ink cartridge for printer		208-953-6
R83		4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol		561-41-1	Writing ink, Dye		209-218-2
R84		$\alpha, \alpha$ -Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol [C.I. Solvent Blue 4]		6786-83-0	Printing and writing ink, Dye		229-851-8
R85	P	Bis(pentabromophenyl) ether [Decabromodiphenyl ether]	DecaBDE	1163-19-5	Flame retardant	2012/12/19	214-604-9
R86		Pentacosaflluorotridecanoic acid		72629-94-8	Surfactant		276-745-2
R87		Tricosaflluorododecanoic acid		307-55-1	Surfactant		206-203-2
R88		Henicosaflluoroundecanoic acid		2058-94-8	Surfactant		218-165-4
R89		Heptacosaflluorotetradecanoic acid		376-06-7	Surfactant		206-803-4
R90		Diazene-1,2-dicarboxamide [C,C'-azodi(formamide)]		123-77-3	Foaming agent for rubber and synthetic resin		204-650-8
R91		Cyclohexane-1,2-dicarboxylic anhydride [Hexahydrophthalic anhydride] (including isomers)	HHPA	85-42-7 13149-00-3 14166-21-3	Epoxy resin hardener		201-604-9 236-086-3 238-009-9
R92		Hexahydromethylphthalic anhydride [Methylhexahydrophthalic anhydride] (including isomers)	MHHPA	25550-51-0 19438-60-9 48122-14-1 57110-29-9	Epoxy resin hardener		247-094-1 243-072-0 256-356-4 260-566-1
R93		4-Nonylphenol, branched and linear		-	Surfactant raw material Binder for ink		-
R94		4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (including polymers and homologues)		-	Surfactant		-
R95		Methoxyacetic acid		625-45-6	Catalyst		210-894-6
R96		N,N-dimethylformamide	DMF	68-12-2	Solvent for synthesis		200-679-5
R97	P	Dibutyltin dichloride	DBTC	683-18-1	Stabilizer for resin, Curing catalyst		211-670-0
R98	P	Lead monoxide [Lead oxide]		1317-36-8	Raw material of glass and stabilizer		215-267-0
R99	P	Orange lead [Lead tetroxide]		1314-41-6	Glass raw material, Pigment		215-235-6
R100	P	Lead bis(tetrafluoroborate)		13814-96-5	Electrolyte for plating		237-486-0
R101	P	Trilead bis(carbonate)dihydroxide		1319-46-6	Pigment, Ceramic raw material		215-290-6
R102	P	Lead titanium trioxide		12060-00-3	Ceramic raw material		235-038-9
R103	P	Lead titanium zirconium oxide		12626-81-2	Ceramic raw material	2012/12/19	235-727-4
R104	P	Silicic acid, lead salt		11120-22-2	Glass raw material		234-363-3
R105	P	Silicic acid (H <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> ), barium salt (1:1), lead-doped		68784-75-8	Lamp phosphor material		272-271-5
R106		1-bromopropane [n-propyl bromide]		106-94-5	Cleaning solvent		203-445-0

No.	AT level	Substance name	CAS.No.	Example of use	Date of inclusion	EC No.
R107		Methyloxirane [Propylene oxide]	75-56-9	Resin raw material	2012/12/19	200-879-2
R108		1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	DPP 84777-06-0	Plasticizer		284-032-2
R109		Diisopentylphthalate	DIPP 605-50-5	Plasticizer		210-088-4
R110		N-pentyl-isopentylphthalate	PIPP 776297-69-9	Plasticizer		-
R111		1,2-diethoxyethane	EGDEE 629-14-1	Solvent, Solvent for synthesis		211-076-1
R112	P	Acetic acid, lead salt, basic	51404-69-4	Manufacture of chemicals, Intermediate		257-175-3
R113	P	Lead oxide sulfate	12036-76-9	Stabilizer for resin		234-853-7
R114	P	[Phthalato(2-)]dioxotrilead	69011-06-9	Stabilizer for resin		273-688-5
R115	P	Dioxobis(stearato)trilead	12578-12-0	Stabilizer for resin		235-702-8
R116	P	Fatty acids, C16-18, lead salts	91031-62-8	Stabilizer for resin		292-966-7
R117	P	Lead cyanamide	20837-86-9	Anticorrosive paint		244-073-9
R118	P	Lead dinitrate	10099-74-8	Synthetic raw material		233-245-9
R119	P	Pentalead tetraoxide sulphate	12065-90-6	Stabilizer for resin, Lead battery		235-067-7
R120	P	Pyrochlore, antimony lead yellow [C.I. Pigment Yellow 41]	8012-00-8	Pigment		232-382-1
R121	P	Sulfurous acid, lead salt, dibasic	62229-08-7	Stabilizer for resin		263-467-1
R122	P	Tetraethyllead	78-00-2	Antiknocking agent		201-075-4
R123	P	Tetralead trioxide sulphate	12202-17-4	Stabilizer for resin		235-380-9
R124	P	Trilead dioxide phosphonate	12141-20-7	Stabilizer for resin		235-252-2
R125		Furan	110-00-9	Synthetic raw material, Solvent		203-727-3
R126		Diethyl sulphate	64-67-5	Synthetic raw material		200-589-6
R127		Dimethyl sulphate	77-78-1	Synthetic raw material		201-058-1
R128		3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	Moisture scavenging agent		421-150-7
R129		Dinoseb [6-sec-butyl-2,4-dinitrophenol]	88-85-7	Fungicide		201-861-7
R130		4,4'-methylenedi-o-toluidine [4,4'-Diamino-3,3'-dimethyldiphenylmethane]	838-88-0	Epoxy resin hardener, Urethane resin hardener		212-658-8
R131		4,4'-oxydianiline and its salts	101-80-4	Resin raw material		202-977-0
R132		4-aminoazobenzene [C.I. Solvent Yellow 1]	60-09-3	Dye intermediate		200-453-6
R133		4-methyl-m-phenylenediamine [Toluene-2,4-diamine]	95-80-7	Resin raw material, Dye intermediate		202-453-1
R134		6-methoxy-m-toluidine [p-cresidine]	120-71-8	Dye intermediate		204-419-1
R135		Biphenyl-4-ylamine	92-67-1	Dye intermediate		202-177-1
R136		o-aminoazotoluene [C.I. Solvent Yellow 3]	97-56-3	Dye intermediate	202-591-2	
R137		o-toluidine	95-53-4	Dye raw material, Resin curing agent	202-429-0	
R138		N-methylacetamide	79-16-3	Manufacture of chemicals	201-182-6	
R139	P	Cadmium	7440-43-9	Battery, Pigment, Coating	2013/6/20	231-152-8
R140	P	Cadmium oxide	1306-19-0	Battery, Coating, Alloy		215-146-2
R141		Ammonium pentadecafluorooctanoate	APFO 3825-26-1	Surfactant, Resin additive		223-320-4
R142		Pentadecafluorooctanoic acid	PFOA 335-67-1	Surfactant, Resin additive		206-397-9
R143		Dipentyl phthalate	DPP 131-18-0	Plasticizer		205-017-9
R144		4-Nonylphenol, branched and linear, ethoxylated	-	Surfactant, Paint		-
R145	P	Cadmium sulphide	1306-23-6	Pigment		2013/12/16
R146	P	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) [C.I. Direct Red 28]	573-58-0	Azo dye	209-358-4	
R147	P	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]	1937-37-7	Azo dye	217-710-3	
R148		Dihexyl phthalate	DnHP 84-75-3	Plasticizer	201-559-5	
R149		Imidazolidine-2-thione; 2-imidazoline-2-thiol	96-45-7	Vulcanizing accelerator	202-506-9	
R150	P	Lead di(acetate)	301-04-2	Pigment, Dye, Paint	206-104-4	
R151		Trixylyl phosphate	25155-23-1	Flame retardant, Plasticizer	246-677-8	
R152	P	Cadmium chloride	10108-64-2	Pigment, Stabilizer, Plating	2014/6/16	233-296-7
R153		1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	DIHP 68515-50-4	Plasticizer		271-093-5
R154		Sodium peroxometaborate	7632-04-4	Oxidation bleach, Dyeing aid		231-556-4
R155		Sodium perborate; perboric acid, sodium salt	-	Oxidation bleach, Dyeing aid	239-172-9 234-390-0	
R156	P	Cadmium fluoride	7790-79-6	Alloy, Glass	2014/12/17	232-222-0
R157	P	Cadmium sulphate	10124-36-4 31119-53-6	Plating, Battery		233-331-6
R158	P	2-benzotriazol-2-yl-4,6-di-tert-butylphenol [UV-320]	3846-71-7	UV absorber		223-346-6
R159		2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol [UV-328]	25973-55-1	UV absorber		247-384-8
R160	P	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate	DOTe 15571-58-1	Heat stabilizer for PVC		239-622-4
R161	P	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)	-	Heat stabilizer for PVC	-	

※ For the latest information for SVHC and each chemical substance, please refer the following ECHA websight.

→ [http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)