

**Cradle to Cradle Certified Products Standard Version 4.0 Restricted Substances List (RSL) - Effective July 1, 2021**

**1. Background**

The following restrictions apply to all products seeking Cradle to Cradle certification or a Material Health Certificate at any certification level under Version 4.0 of the Cradle to Cradle Certified Product Standard (the Standard). Unless noted otherwise, the applicable thresholds may not be exceeded for the listed restricted substances present in any homogeneous material subject to review in a certified product.

The restrictions are grouped into a core list that applies to all homogeneous materials subject to review in all products, and six supplementary lists, which include additional restrictions specific to certain material or product types (see Section 2). Some substances are on multiple lists with differing thresholds or restriction conditions. In such cases, the most conservative applicable restriction must be met (e.g., PAHs are restricted with different thresholds on the Biological Materials and the Children's Products Lists. For a biological material in a children's product, PAH concentrations must be below the more conservative thresholds on the Children's Product List).

With the exception of restrictions for certain classes of organohalogens on the core list (see "Notes" below), the restrictions for substances on the RSL are based on leading international chemical regulations. The chemical regulations included are those currently in effect in the European Union (EU) under Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), Restriction of Hazardous Substances (RoHS), the Stockholm Convention, the Toy Directive, and the Cosmetics Products Regulation, as well as one threshold based on the European Council of Vinyl Manufacturers (ECVM) Industry Charter. Chemical regulations included from outside the EU are the Canadian Cosmetic Ingredient Hotlist and the Japan Standard for Cosmetics. Where a substance or substance group on this RSL is also on the list of Chemicals Known to the State to Cause Cancer or Reproductive Toxicity under California Proposition 65 ("The Safe Drinking Water and Toxic Enforcement Act of 1986"), this is referenced. For the Cosmetics and Personal Care products supplementary list, only chemicals from the referenced regulations (Cosmetics Products Regulation Annex II, III and V, the Canadian Cosmetic Ingredient Hotlist and the Japan Standard for Cosmetics) that appeared on two or more regulatory and/or industry standard lists were included.

A number of the regulatory restrictions were generalized to apply to a broader set of materials or products than the original regulation addresses. Where restrictions from separate regulations overlapped, they were summarized to reflect the most general among the overlapping restrictions, both in terms of the restrictions' scope and the group of chemicals covered (e.g., all lead compounds versus just lead sulfates). Where multiple regulatory thresholds exist for the same substance and general application, the most conservative threshold was used.

To reflect additional restrictions that are added to the source regulations over time, the RSL will be updated annually. With each revision of this reference document, current certification holders will be granted a transition period for their certified products to become certified under the newly released version.

**Notes:** The RSL also includes restrictions on certain classes of organohalogens (see Section 4.2 in the Standard). Organohalogens are not currently restricted via a class-based approach in any international chemical regulations, but are included on the RSL to provide a complete list of substances that are restricted from use in any Cradle to Cradle Certified product.

In addition to the restrictions listed in this document, the program includes restrictions based on chemical class and toxicological assessment as specified in the Standard. Materials with > 1% carbon-bonded halogen content by weight, and recognized PBTs, vPvBs, EU CLP Cat.1 and 2 CMRs, and substances causing an equivalent level of concern are restricted at the Silver level and above. Furthermore, only substances that are assessed as compatible with human and environmental health following the Cradle to Cradle Certified Material Health Assessment Methodology are allowed in products at the Gold and Platinum levels.

2. Definitions and Scope of Restricted Substances Lists

**Core List for All Materials in All Products** – The restrictions on the core list apply to all homogeneous materials subject to review in a product seeking certification.

**Biological Nutrient Materials** – The restrictions on this list apply to BN materials subject to review in any product. For the purpose of this list, BN materials are those that fall under one or more of the following categories: (1) Materials released directly to biosphere as part of their intended use or end-of-use (liquid formulated products, aerosols, materials designed for composting or other biodegradation pathways, etc.), (2) Materials for which partial or complete release to environment is unavoidable as a part of use or end-of-use of the product (paint, materials designed to abrade such as brake pads, shoe soles, sliders, etc.), (3) Biological materials (wood, agricultural products, etc.) or biologically derived materials that are commonly regarded as compostable/biodegradable (paper, cellulose, etc.).

**Children’s Products** – The restrictions on this list apply to all homogeneous materials subject to review in a children’s product. A children’s product is defined as any product that is marketed toward or intended specifically for use by infants or children.

**Formulated Consumer Products** – The restrictions on this list apply to any homogeneous material subject to review in a formulated consumer product. Formulated consumer products are defined as any chemical mixture (paint, detergent, nail polish, etc.) intended for supply to the general public and/or intended for diffusive applications such as in surface cleaning and cleaning of fabrics.

**Textile Materials** – The restrictions on this list apply to textile materials subject to review in any product. A textile is defined as a material that is composed of natural or synthetic fibers and is produced by weaving, knitting, tufting, or felting. This includes face fibers in carpet and upholstery, as well as apparel textiles.

**Footwear, Apparel & Jewelry Products** – The restrictions on this list apply to any homogeneous material subject to review in jewelry, apparel, footwear, clothing, or related accessories. They also apply to any textile material which, under normal or reasonably foreseeable conditions of use, comes into contact with human skin to an extent similar to clothing. Apparel and jewelry are defined as a product that clothes or adorns any part of the human body.

**Cosmetics & Personal Care Products** –The restrictions on this list apply to any homogeneous material subject to review that meets the following definition for a cosmetic or personal care formulation. Cosmetic and personal care formulations are defined as any substance or chemical mixture intended to be placed in contact with the external parts of the human body, or with the teeth and the mucous membranes of the oral cavity, with a view exclusively or mainly to clean them, perfume them, change their appearance, protect them, keep them in good condition, or correct body odors. This includes makeup and hair, face, body and hand care products, including hand soaps and sanitizers.

3. Legend

Restriction Source	Symbol or Indicator	Notes
REACH Annex XVII	REACH [number (1-74, 62b, etc.)]	Regulation (EC) No 1907/2006, Numbers correspond to entry in Annex XVII
REACH Annex XIV Authorization list	REACH Auth [number (1-54)]	Regulation (EC) No 1907/2006, numbers correspond to entry in Annex XIV
Restriction of Hazardous Substances	RoHS	Directives 2002/95/EC, 2011/65/EU, 2015/863/EU
Persistent Organic Pollutants Banned by Stockholm Convention and/or EU Commission	POPs	EU Commission Regulation No 2019/1021
ECVM Industry Charter for the Production of VCM and PVC	ECVM	Industry guidelines
EU Toy Safety Directive 2009/48/EC	9/48/EC	Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys
EU. Cosmetics Regulation, Annex II, Prohibited Substances	EU II	Cosmetic Products Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products
EU. Cosmetics Regulation, Annex III, Restricted Substances	EU III	Cosmetic Products Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products
EU. Cosmetics Regulation, Annex V, Allowed Preservatives	EU V	Cosmetic Products Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products
Canadian Cosmetic Ingredient Hotlist	Can	Canada Cosmetic Regulations, C.R.C., c. 869, FOOD AND DRUGS ACT
Japan Standard for Cosmetics	Japan	
California's Proposition 65, 03 January 2020	Prop 65	Chemical or chemical group listed on the list of Chemicals Known to the State to Cause Cancer or Reproductive Toxicity. *NOTE: Prop 65 was not used to derive restrictions. It is only noted as a cross-reference for restricted substances that are also included on the Prop 65 list.

	Entry	Interpretation
Non-use (when written in the "max. allowable concentration" column)	Non-use	Shall not be used as intentional input, treatment, or as part of process chemicals. Restricted to 1,000 ppm if present as an unintentional contaminant unless otherwise noted.

**Several (when written in the "CAS Number(s)" column)**

several

This notation is used for restrictions that apply to a chemical group rather than individual substances with defined CASRNs. For example, the restrictions on toxic elements such as cadmium apply based on the elemental content and regardless of the specific cadmium compound present. It is not possible to provide a comprehensive list of CAS numbers that would cover all cadmium compounds, since new cadmium compounds (that do not yet have CAS numbers) would still be restricted.

4. Core Restricted Substances List for All Materials in All Products

	Sub-Grouping	Chemical(s) Name	Acronym or Trade Name	CAS Number(s)	Max. allowable concentration (ppm)	Restriction Notes	Restriction Source
Inorganics	Asbestos	Crocidolite		12001-28-4	Non-use		REACH 6a, Prop 65
		Amosite		12172-73-5	Non-use		REACH 6b, Prop 65
		Anthophyllite		77536-67-5	Non-use		REACH 6c, Prop 65
		Actinolite		77536-66-4	Non-use		REACH 6d, Prop 65
		Tremolite		77536-68-6	Non-use		REACH 6e, Prop 65
		Chyrostile		12001-29-5, 132207-32-0	Non-use		REACH 6f, Prop 65
	Metals & Metalloids	Arsenic and its compounds	As	several	1,000*	*1 ppm after extraction in footwear, clothing or related accessories, and textiles which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing.	REACH 19, Auth 8, 9, 24, Prop 65
		Cadmium and its compounds	Cd	several	100*	*1 ppm after extraction in footwear, clothing or related accessories, and textiles which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing.	REACH 23, RoHS, Prop 65
		Chromium VI and its compounds	Cr VI	several	1,000*	*1 ppm after extraction in footwear, clothing or related accessories, and textiles which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing ; 2 ppm in cement (dry weight); 3 ppm in leather (dry weight); 0.2 ppm for BN materials; 1,000 ppm for all other materials.	REACH 47, Auth 16-22, 28-31, RoHS, Prop 65
		Mercury and its compounds	Hg	several	1,000		REACH 18, RoHS, Prop 65
		Lead and its compounds	Pb	several	1,000*	*Shall not be used in paint. 1 ppm after extraction in footwear, clothing or related accessories, and textiles which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing. Restriction threshold is 0.35% in steel, 0.4% in aluminum, and 4% in copper alloys, 1,000 ppm in all other non-BN materials.	REACH 16, 17, 63, Auth 10-12, RoHS, Prop 65
	Borates	Sodium perborate, perboric acid, sodium salt		15120-21-5, 11138-47-9	1,000		REACH Auth 48
		Sodium peroxometaborate		7632-04-04	1,000		REACH Auth 49
	Organometals	Phenylmercury acetate	PMA	62-38-4	100		REACH 62a
		Phenylmercury propionate		103-27-5	100		REACH 62b
		Phenylmercury 2-ethylhexanoate		13302-00-6	100		REACH 62c
		Phenylmercury octanoate		13864-38-5	100		REACH 62d
		Phenylmercury neodecanoate		26545-49-3	100		REACH 62e
		Tributyl tin	TBT	several	1,000		REACH 20, Prop 65
		Triphenyl tin	TPT	several	1,000		REACH 20, Prop 65
		Dibutyl tin	DBT	several	1,000		REACH 20
		Diocetyl tin compounds	DOT	several	1,000		REACH 20
		Dibutyltin hydrogen borate		75113-37-0	1,000		REACH 21
		Halogenated polymers (including PVC, PTFE, etc.), halogenated organic solvents, and other highly halogenated, carbon-based materials			See Section 4.2 of the Standard	In addition to the restrictions on specific flame retardants listed below, any halogenated or organophosphate ester flame retardant (as defined in Section 4.2 of the Standard) in the material (intentionally added or present as an impurity) must be less than 1,000 ppm (except in exempt materials/parts as noted in Section 4.2 of the Standard).	Cradle to Cradle Certified Product Standard Version 4.0
	Halogenated and Organophosphate Ester Flame Retardants (HFRs & OPFRs)	General restriction on halogenated and organophosphate ester flame retardants		several	See Section 4.2 of the Standard	In addition to the restrictions on specific HFRs listed below, carbon-bonded chlorine and bromine within any flame retardant in the material (intentionally added or present as an impurity) must be less than 1,000 ppm (except in exempt materials/parts as noted in Section 4.2 of the Standard).	Cradle to Cradle Certified Product Standard Version 4.0
		Polybrominated diphenyl ethers	PBDEs	several	10*	*The 10 ppm limit applies to each individual PBDE.	REACH 45, 67, RoHS, POPs, Prop 65 (only DE-71)
		Polybrominated biphenyls	PBBs	several	Non-use*	*If present as an unintentional trace contaminant the substance must be below detection with a detection limit of 5 ppm [limit based on AFIRM's Restricted Substances List v5.0]. Restriction threshold is 0.1% (1,000 ppm) for electronic products.	REACH 8, POPs, ROHS, Prop 65
		Hexabromocyclododecane	HBCDD	3194-55-6, 25637-99-4, 134237-50-6, 134237-51-7, 134237-52-8	100		REACH Auth 3, POPs
		Tris(2-chloroethylphosphate)	TCEP	115-96-8	1,000*	* 5 ppm for Children's products.	REACH Auth 13, 9/48/EC, Prop 65
	Halogenated Diphenyl Methanes	Monomethyl-tetrachlorodiphenyl methane	Ugilec 141	76253-60-6	10		REACH 24, POPs
		Monomethyl-dichloro-diphenyl methane	Ugilec 121, 21	81161-70-8	10		REACH 25, POPs
		Monomethyl-dibromo diphenyl methane bromobenzylbromotoluene, mixture of isomers	DBBT	99688-47-8	10		REACH 26, POPs
	Brominated Compounds	1-Bromopropane		106-94-5	1,000		REACH Auth 32, Prop 65
		Polychlorinated terphenyls	PCTs	61788-33-8 and others	50		REACH 1
		Polychlorinated biphenyls	PCBs	several	Non-use*	*If present as an unintentional trace contaminant the substance must be present below detection with a detection limit of 0.1 ppm [limit based on Apple's Regulated Substances Specification 069-0135-K]. Testing is required for products that are colorants, pigments, dyes, or inks containing diarylide yellow, orange, and red and phthalocyanine blue and greens pigments.	POPs, Prop 65

Organohalogens	Chlorinated Compounds	Polychlorinated naphthalenes		several	Non-use*	*If present as an unintentional trace contaminant, the substance must be below detection with a detection limit of 5 ppm [limit based on Apple's Regulated Substances Specification 069-0135-K]. Polychlorinated naphthalenes means chemical compounds based on the naphthalene ring system, where one or more hydrogen atoms have been replaced by chlorine atoms.	POPs
		Hexachlorobutadiene	HCBD	87-68-3	Non-use*	*If present as an unintentional trace contaminant, the substance must be below detection with a detection limit of 0.1 ppm [limit based on EPA test method 8260B].	POPs, Prop 65
		Pentachlorobenzene	PeCB	608-93-5	Non-use*	*If present as an unintentional trace contaminant, the substance must be below detection with a detection limit of 0.2 ppm [limit based on AFIRM's Restricted Substances List v5.0].	POPs
		Hexachlorooethane (perchloroethane)	PCE	67-72-1	1,000		REACH 41, Prop 65
		Pentachlorophenol and its salts and esters	PCP	87-86-5 and others	Non-use*	*If present as an unintentional trace contaminant, the substance must be below 5 ppm [COMMISSION DELEGATED REGULATION (EU) Document C(2020)8844].	REACH 22, Prop 65, POPs
		Trichlorobenzene	TCB	120-82-1	1,000		REACH 49
		Trichloroethylene	TCE	79-01-6	1,000		REACH Auth 15
		2,2'-Dichloro-4,4'-methylenedianiline	MOCA	101-14-4	1,000*	*Also see textiles list. 30 ppm for textiles.	REACH Auth 27, Prop 65
		1,2-Dichloroethane	EDC	107-06-02	1,000		REACH Auth 26, Prop 65
		Chloroethylene (Vinyl chloride monomer)	VCM	75-01-4	5*	*5 ppm for general, 1 ppm for food and medical applications; may not be used as propellant.	REACH 2, ECVM, Prop 65
		Short-chain chlorinated paraffins	SCCPs	85535-84-8	1,500*	*Threshold applies to solid homogeneous materials. For liquid mixtures the restriction limit value is 1%. Note that SCCPs are listed as a Cat. 2 carcinogen in Annex VL of CLP, thus they are restricted if subject to review (≥100 ppm) at the Silver level and above and at all levels for formulated consumer products.	POPs, Prop 65
	Fluorinated Compounds	General restriction on per- or polyfluoroalkyl substances (PFASs)	PFASs	several	See Section 4.2 of the Standard	PFAS-based materials, including fluoropolymers and PFAS-coatings, are not permitted for use (except in exempt materials/parts as noted in Section 4.2 of the Standard). If present as an impurity or minor additive in an otherwise non-fluorinated organic material, carbon-bonded fluorine within PFASs in the material must be less than 1,000 ppm.	Cradle to Cradle Certified Product Standard
		Perfluorooctane sulfonic acid and its derivatives	PFOS, C-8	1763-23-1	10*	*1 ug/m2 for textiles and other coated materials.	POPs
		Perfluorooctane sulfonates	PFOS, C-8 salts	several	10*	*1 ug/m2 for textiles and other coated materials.	POPs
		Perfluorooctanoic acid and its salts*	PFOA	several	25*	This includes related substances as defined in Entry 68 of REACH Annex XVII. 25 ppm threshold applies to PFOA and its salts. The sum of PFOA related substances may not exceed 1,000 ppm.	REACH 68, Prop 65
Polycyclic Aromatic Hydrocarbons (PAH)		Benzo[a]pyrene	BaP	50-32-8	1*		REACH 50a, Prop 65
		Benzo[e]pyrene	BeP	192-97-2	1*		REACH 50b
		Benzo[a]anthracene	BaA	56-55-3	1*	Applies to rubber or plastic materials that come into direct, prolonged, or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use (i.e., sports equipment, household utensils, trolleys, walking frames, tools for domestic use, apparel, jewelry, etc.).	REACH 50c, Prop 65
		Chrysene	CHR	218-01-09	1*		REACH 50d, Prop 65
		Benzo[b]fluoranthene	BbFA	205-99-2	1*		REACH 50e, Prop 65
		Benzo[j]fluoranthene	BjFA	205-82-3	1*	*Concentration threshold is 0.5 ppm for Children's products (see Children's products list). For all relevant materials, the sum of all PAHs may not exceed 10 ppm.	REACH 50f, Prop 65
		Benzo[k]fluoranthene	BkFA	207-08-09	1*		REACH 50g, Prop 65
		Dibenzo[a,h]anthracene	DBAhA	53-70-3	1*		REACH 50h, Prop 65
Ortho-phthalates		Bis (2-ethylhexyl) phthalate	DEHP	117-81-7	1,000		REACH 51a, Auth 4, RoHS, Prop 65
		Dibutyl phthalate	DBP	84-74-2	1,000		REACH 51a, Auth 6, RoHS, Prop 65
		Benzyl butyl phthalate	BBP	85-68-7	1,000		REACH 51a, Auth 5, RoHS, Prop 65
		Di-n-pentyl phthalate	DPP	131-18-0	1,000		REACH 72, REACH Auth 38
		Diisopentylphthalate	DIPP	605-50-5	1,000		REACH Auth 33
		Diisobutyl phthalate	DIBP	84-69-5	1,000		REACH Auth 7, RoHS
		1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7 rich		71888-89-6	1,000		REACH Auth 34
		1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters		68515-42-4	1,000		REACH Auth 35
		1,2-Benzenedicarboxylic acid, dipentylester, branched and linear		84777-06-0	1,000		REACH Auth 36
		Bis(2-methoxyethyl) phthalate		117-82-8	1,000		REACH Auth 37
		N-pentyl-isopentylphthalate		776297-69-9	1,000		REACH Auth 39
		1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear		68515-50-4	1,000		REACH Auth 44
		Dihexyl phthalate		84-75-3	1,000		REACH Auth 45
		1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters		68648-93-1, 68515-51-5	1,000		REACH Auth 46



Aromatics	Benzene			71-43-2	1,000*	*5 ppm for children's products, footwear, clothing or related accessories, and textiles which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing; 1,000 ppm for all other product types.	REACH 5, 72 Prop 65
	Aromatic Amine (Anilines)	2-Naphthylamine and its salts		91-59-8 and others	1,000		REACH 12, Prop 65
		1,1'-biphenyl-4,4'-diamine and its salts	Benzidine	several	1,000		REACH 13, Prop 65
		4-Aminobiphenyl xenylamine and its salts		92-67-1 and others	1,000		REACH 15, Prop 65
		4,4'-Diaminodiphenylmethane	MDA	101-77-9	1,000*	*Also see textiles list. 30 ppm for textiles.	REACH Auth 2, Prop 65
	Phenol Derivatives	Nonylphenols	NP	several	1,000		REACH 46a
		Nonylphenol ethoxylates	NPE	several	1,000		REACH 46b
		2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol	UV-328	25973-55-1	1,000		REACH Auth 51
		2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol	UV-327	3864-99-1	1,000		REACH Auth 52
		2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol	UV-350	36437-37-3	1,000		REACH Auth 53
		2-benzotriazol-2-yl-4,6-di-tert-butylphenol	UV-320	3846-71-7	1,000		REACH Auth 54
		4-(1,1,3,3-Tetramethyl)phenol, ethoxylated		several*	1,000	*Covers well-defined substances, those of unknown or variable composition, complex reaction products, biological (UVCB) substances, polymers and homologues. Including, but not limited to CASRNs: 9002-93-1, 2497-59-8, 2315-67-5, and 2315-61-9.	REACH Auth 42
		4-Nonylphenol, branched and linear, ethoxylated		several*	1,000	*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. Including, but not limited to CASRNs: 7311-27-5, 14409-72-4, 20427-84-3, 68412-54-4, 26027-38-3, 27942-27-4, 9016-45-9, 1119449-38-5, 1119449-37-4, 9016-45-9, 37205-87-1, 127087-87-0, and 26571-11-9.	REACH Auth 43
		Trixylyl phosphate		25155-23-1	1,000		REACH Auth 47
	Nitroaromatics	5-tert-butyl-2,4,6-trinitro-m-xylene	Musk xylene	81-15-2	1,000		REACH Auth 1
		4-nitrobiphenyl		92-93-3	1,000		REACH 14, Prop 65
		2,4-Dinitrotoluene	DNT	121-14-2	1,000		REACH Auth 14, Prop 65
Tar Products		Anthracene oil		90640-80-5	1,000		REACH Auth 40
		Pitch, coal tar, high temp.		65996-93-2	1,000		REACH Auth 41
Organic Solvents	(Note: see also "Organohalogens" for halogenated organic solvents]	Formaldehyde, oligomeric reaction products with aniline		25214-70-4	1,000		REACH Auth 23
		Bis(2-methoxyethyl) ether	Diglyme	111-96-6	1,000		REACH Auth 25
		Dimethylfumarate	DMF	624-49-7	0.1	*Covering any of the individual stereoisomers of [1] and [2] or any combination thereof. Including, but not limited to CASRNs: 117933-89-8.	REACH 61
		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]	1,3-dioxanes	several*	1,000		REACH Auth 50

8. Additional Restrictions for Textile Materials

	Sub-Grouping	Chemical(s) Name	Acronym or Trade Name	CAS Number(s)	Max. allowable concentration (ppm)	Restriction Notes	Restriction Source
Aromatics	Aromatic Amines (Anilines)	2-naphthylamine		91-59-8	30		REACH 43, Prop 65
		2,4,5-trimethylaniline		137-17-7	30		REACH 43, Prop 65
		3,3'-dichlorobenzidine		91-94-1	30		REACH 43, Prop 65
		<i>o-dianisidine</i>		119-90-4	30		REACH 43, Prop 65
		3,3'-dimethylbenzidine		119-93-7	30		REACH 43, Prop 65
		4-Aminoazobenzene		60-09-3	30		REACH 43, Prop 65
		4-chloro-o-toluidine	4-COT	95-69-2	30	This restriction applies to the concentration of aromatic amines in the finished product. While not intentionally added, these aromatic amines can be present in textile materials as a breakdown product formed through reductive cleavage from certain azocolourants. Compliance with this restriction is most effectively evaluated by determining whether any azocolourants capable of producing any of these aromatic amines through reductive cleavage were used in the dying of a fabric.	REACH 43, Prop 65
		4-chloroaniline		106-47-8	30		REACH 43, Prop 65
		4-methoxy-m-phenylenediamine		615-05-04	30		REACH 43, Prop 65
		4-methyl-m-phenylenediamine		95-80-7	30		REACH 43, Prop 65
		4,4'-methylene-bis-(2-chloro-aniline	MOCA, MBOCA	101-14-4	30		REACH 43, Prop 65
		4,4'-methylenedi-o-toluidine		838-88-0	30		REACH 43, Prop 65
		4,4'-diaminodiphenylmethane	MDA	101-77-9	30	Alternatively, the analytical tests methods set forth in Appendix 10 of REACH (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2006R1907:20130701:EN:PDF#page=517) may be used to verify compliance with this set of restrictions.	REACH 43, Prop 65
		4,4'-oxydianiline		101-80-4	30		REACH 43, Prop 65
		4,4'-thiodianiline	TDA	139-65-1	30		REACH 43, Prop 65
		5-nitro-o-toluidine		99-55-8	30		REACH 43
		6-methoxy-m-toluidine	<i>p-Cresidine</i>	120-71-8	30		REACH 43, Prop 65
		1,1'-biphenyl-4,4'-diamine and its salts	Benzidine	92-87-5	30		REACH 43, Prop 65
		4-aminobiphenyl xenylamine		92-67-1	30		REACH 43, Prop 65
		<i>o-aminoazotoluene</i>		97-56-3	30		REACH 43, Prop 65
		<i>o-anisidine</i>		90-04-0	30		REACH 43, Prop 65
		<i>o-toluidine</i>		95-53-4	30		REACH 43, Prop 65
	Azo Dye	Chromate(2-), [1-[[5-chloro-2-hydroxyphenyl] azo]-2-naphthalenolato(2-)] [4-hydroxy-3-[[2-hydroxy -3,5-dinitrophenyl]azo]-7-[[4-methoxypheny l)amino]-2-naphthalenesulfonato(3-)]-, disodium		118685-33-9	1,000		REACH 43
	Phenol Derivatives	Nonylphenol ethoxylates		several	100		REACH 46a
Flame Retardant		Tris(2,3-dibromopropyl) phosphate	TDPP, Tris	126-72-7	1,000*	*Shall not be used in textile articles, such as garments, undergarments and linen, intended to come into contact with the skin.	REACH 4, Prop 65
				545-55-1	*	*Shall not be used in textile articles, such as garments, undergarments and linen, intended to come into contact with the skin. If present as an unintentional trace contaminant the substance must be below detection with a detection limit of 5 ppm [limit based on AFIRM's Restricted Substances List v5.0].	REACH 7
		Tris(aziridinyl)phosphinoxide					
Organohalogens	Fluorinated Compounds	Perfluorooctane sulfonic acid	PFOS, C-8	1763-23-1	*	*1 ug/m2	POPs, Prop 65
		Perfluorooctane sulfonates	PFOS, C-8 salts	several	*	*1 ug/m2	POPs
		Perfluorooctanesulfonyl flouride	PFOSF, C-8	307-35-7	*	*1 ug/m2	POPs