

## Appendix C: Restricted Substance List (RSL)

See below matrix of required testing against high risk chemical groups. Testing must be done in each applicable material category against high risk chemical groups indicated by risk level 1 & 2 below.

Abbreviated version

The full version of our RSL with concentration limits can be downloaded [here](#). All materials and components must comply with the full version of our RSL.

Substance	Natural Fibers	Blended Fibers	Synthetic Fibers	Artificial Leather	Natural Leather	Coatings & Prints	Natural Materials	Polymers, Plastics, & Synthetic rubber	Metal	Feathers & down	Glue
Acetophenone and 2-Phenyl-2Propanol								1 <sup>A</sup>			
Acidic and Alkaline Substances (pH)	1	1	1	1	1						
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs) & isomers	1	1	1	1	1	1	1	1		3	1
Azo-amines	1	1	1	1	1	1	1			1	
Bisphenol-A								1 <sup>B</sup>			
Chlorinated Paraffins, SCCP (C10-C13) and MCCP (C14-C17)	3	3	3	3	1	3		2			
Chlorophenols (Tri-, Tetra-, and Pentachlorophenols)	3	3		3	3	3				3	
Chlororganic Carriers		2	2		3						
Dimethylfumarate (DMFu)	3	3	3	3	3	3		3			
Dyes, Forbidden and Disperse		2	2	2		2					
Dyes, Navy Blue		3	3	3		3					
Flame Retardants	3 (if finish is applied)										
Formaldehyde	1	1	2	2	1	1	1				1
Heavy Metals, Chromium VI	3				1						
Heavy Metals, Nickel Release									1		
Heavy Metals, Cadmium Total				3		2		3	2		
Heavy Metals, Lead Total				3		2		2 <sup>C</sup>	2		
Heavy Metals, Additional Total (Hg & As)				3		3		3	3		
Heavy Metals, Extractable	2	2	2	2	2	2		2			
N-Nitrosamines								2 <sup>D</sup>			
Organotin Compounds	3	3	3	3	3	3		3			3
Ortho-phenylphenol (OPP)	2	2	2	2	2	2					
Ozone-depleting Substances	3										
Perfluorinated and Polyfluorinated Chemicals (PFCs)	2 (If water- or stain-repellant finish is applied)										
Pesticides, Agricultural	3	3			3						
Phthalates				1		1		1			1

Polycyclic Aromatic Hydrocarbons (PAHs)				3		1		1			1
Quinoline		3	3								
Solvents/ Residuals (e.g. DMFa, DMAC, NMP, Formamide)				1 <sup>E</sup>		1 <sup>E</sup>		1 <sup>E</sup>			2
Styrene Monomer								2 <sup>G</sup>			
UV Stabilizers/ Inhibitors								2			
Vinyl Chloride Monomer						2 <sup>H</sup>		2 <sup>H</sup>			
Volatile Organic Compounds (VOCs)	2	2	2	2	2	2		2			2

1	Indicates that there has been a widespread use and/or frequently detected in a material
2	Indicates that the chemical has been deliberately used and/or detected in a material occasionally
3	Indicates that there is a low theoretical chance that the chemical could be used and/or detected
	Indicates that there is almost negligible risk of a chemical being used and/or detected

- A. 'Red Risk-level 1' applies only to Ethylene-Vinyl Acetate (EVA) foam. All other materials are 'yellow risk-level 3'.
- B. 'Red Risk-level 1' applies only Polycarbonate materials. All other materials are 'white risk level'
- C. 'Orange risk-level 2' applies only to Foams. All other materials are 'yellow risk-level 3.'
- D. 'Orange risk-level 2' applies only to rubber. All other materials are 'white risk level'
- E. 'Read Risk-level 1' applies only to DMFa in Polyurethane (PU) coatings. All other materials are 'yellow-risk-level 3'
- F. 'Orange risk-level 2' applies only to Styrene based polymers. All other materials are 'white risk-level'
- G. 'Orange risk-level 2' applies only to PVC. All other materials are 'white risk-level'

CAS Number	Chemical Name/Color Index Name	Restriction /Maximum Limit on Final Product or Tested Component	Potential uses in Textile Processing for Apparel & Footwear	Test Method
<b>Acetophenone and 2-Phenyl-2-Propanol</b>				
98-86-2	Acetophenone	50 ppm each	Potential breakdown products in EVA foam when using dicumyl peroxide as a cross-linking agent.	Extraction in acetoneGC/MS, sonication for 30 minutes at 60 degrees C
617-94-7	2-Phenyl-2-Propanol			
<b>Acidic and Alkaline substances</b>				
Various	pH value	Textiles: 4.0–7.5 . Leather: 3.5–7.0	pH value is a characteristic number, ranging from pH 1 to pH 14, which indirectly shows the content of acidic or alkaline substances in a product. pH values less than 7 indicate sources of acidic substances, and values greater than 7 indicate sources of alkaline substances. To avoid irritation or chemical burns to the skin, the pH value of products must be in the range of human skin— approximately pH 5.5. AFIRM recommends the limits cited to comply with all global regulations for all products.	Textiles and Artificial Leather: EN ISO 3071:2006 (KCI Solution)  Leather: EN ISO 4045:2018
<b>alkylphenol (aP) and alkylphenol ethoxylates (aPEOs), including all isomers</b>				
Various	Nonylphenol (NP), mixed isomers	Total 100 ppm	APEOs can be used as or found in detergents, scouring agents, spinning oils, wetting agents, softeners, emulsifying/dispersing agents for dyes and prints, impregnating agents, de-gumming for silk production, dyes and pigment preparations, polyester padding and down/feather fillings. APs are used as intermediaries in the manufacture of APEOs and antioxidants used to protect or stabilize polymers. Biodegradation of APEOs into APs is the main source of APs in the environment.  APEOs and formulations containing APEOs are prohibited from use throughout supply chain and manufacturing processes. We acknowledge that residual or trace concentrations of APEOs may still be found at levels exceeding 100 ppm and that more time is necessary for the supply chain to phase them out completely. This limit reflects forthcoming EU legislation and was set to provide suppliers with advanced warning and direction for continuous improvement.	Textiles: Extraction: 1 g sample/20 mL THF sonication for 60 minutes at 70 degrees C  Measurement: EN ISO 18857:2:2011 (with derivatization)  Leather: EN ISO 18218-2:2015
Various	Octylphenol (OP), mixed isomers			
Various	Octylphenol ethoxylates (OPEOs)			Polymers: 1 g sample/ 20 mL THF, sonication for 60 minutes at 70 degrees C analysis with LC/MS or LC/MS/MS  All other materials: 1 g sample/ 20 mL THF, sonication for 60 minutes at 70 degrees C analysis with GC/MS
Various	Nonylphenol ethoxylates (NPEOs)			All materials except leather: EN ISO 18254-1:2016 with determination of APEO using LC/MS or LC/MS/MS  Leather: EN ISO 18218-1:2015
<b>Azo-amines and Arylamine Salts</b>				
92-67-1	4-Aminobiphenyl	20 ppm each	Azo dyes and pigments are colorants that incorporate one or several azo groups (-N=N-) bound with aromatic compounds. Thousands of azo dyes exist, but only those which degrade to form the listed cleavable amines are restricted. Azo dyes that release these amines are regulated and should no longer be used for dyeing textiles.	All materials except Leather: EN ISO 14362-1:2017 Leather: EN ISO 17234-1:2015  p-Aminoazobenzene: All materials except Leather: EN ISO 14362-3:2017 Leather: EN ISO 17234-2:2011
92-87-5	Benzidine			
95-69-2	4-Chloro-o-toluidine			
91-59-8	2-Naphthylamine			
97-56-3	o-Aminoazotoluene			
99-55-8	2-Amino-4-nitrotoluene			
106-47-8	p-Chloraniline			
0615-05-04	2,4-Diaminoanisole			
101-77-9	4,4'-Diaminodiphenylmethane			
91-94-1	3,3'-Dichlorobenzidine			
119-90-4	3,3'-Dimethoxybenzidine			
119-93-7	3,3'-Dimethylbenzidine			
838-88-0	3,3'-dimethyl-4,4'-diaminodiphenylmethane			
120-71-8	p-Cresidine			
101-14-4	4,4'-Methylen-bis(2-chloraniline)			
101-80-4	4,4'-Oxydianiline			
139-65-1	4,4'-Thiodianiline			

95-53-4	o-Toluidine			
95-80-7	2,4-Toluyldiamine			
137-17-7	2,4,5-Trimethylaniline			
95-68-1	2,4 Xylidine			
87-62-7	2,6 Xylidine			
90-04-0	2-Methoxyaniline (= o-Anisidine)			
60-09-3	p-Aminoazobenzene			
3165-93-3	4-Chloro-o-toluidinium chloride			
553-00-4	2-Naphthylammoniumacetate			
39156-41-7	4-Methoxy-m-phenylene diammonium sulphate			
21436-97-5	2,4,5-Trimethylaniline hydrochloride			
<b>Bisphenols</b>				
80-05-7	Bisphenol-A (BPA)	1 ppm	Used in the production of epoxy resins, polycarbonate plastics, flame retardants and PVC. Prohibited from use in food and drink containers, and items intended to come into contact with the mouth.	All materials: Extraction: 1 g sample/20 ml THF, sonication for 60 minutes at 60 degrees C, analysis with LC/MS.
80-09-1	Bisphenol S (BPS)	For informational purposes only. AFIRM recommends testing polycarbonate materials to assess content levels.	Applicable to food and drink containers, and items intended to come in contact with the mouth. BPA alternatives with known or suspected similar hazards are used in the production of epoxy resins, polycarbonate plastics, flame retardants, and PVC.	
620-62-8	Bisphenol F (BPF)			
1478-61-1	Bisphenol AF (BPAF)			
<b>Chlorinated Paraffins</b>				
85535-84-8	Short-chain chlorinated Paraffins (SCCP) (C10-C13)	1000 ppm each	May be used as softeners, flame retardants, or fat-liquoring agents in leather production; also as a plasticizer in polymer production.	All Materials: Combined CADS/ISO 18219:2015 method V1:06/17 (extraction ISO 18219 and alalysis by GC/NCI/MS)
85535-85-9	Medium-chain chlorinated Paraffins (MCCP) (C14-C17)			
<b>Chlorophenols &amp; Pesticides</b>				
15950-66-0	2,3,4-Trichlorophenol	0.5 ppm each	Chlorophenols are polychlorinated compounds used as preservatives or pesticides. Pentachlorophenol (PCP) and tetrachlorophenol (TeCP), and Trichlorophenols (TriCP) are sometimes used to prevent mould and kill insects when growing cotton and when storing/transporting fabrics. PCP, TeCP, and TriCP can also be used as preservatives in print pastes.	All Materials: 1 M KOH extraction, 16 hours at 90 degrees C, derivatization and analysis 64 LFGB B 82.02-08 or DIN EN ISO 17070:2015
933-78-8	2,3,5-Trichlorophenol			
933-75-5	2,3,6-Trichlorophenol			
95-95-4	2,4,5-Trichlorophenol			
88-06-2	2,4,6-Trichlorophenol			
609-19-8	3,4,5-Trichlorophenol			
4901-51-3	2,3,4,5-Tetrachlorophenol (TeCP)			
58-90-2	2,3,4,6-Tetrachlorophenol (TeCP)			
935-95-5	2,3,5,6-Tetrachlorophenol (TeCP)			
<b>Chlororganic Carriers</b>				
95-49-8	2-Chlorotoluene	Total: 1 ppm	Chlorobenzenes and chlorotoluenes (chlorinated aromatic hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/ polyester fibres. They can also be used as solvents.	All Materials: DIN 54232:2010
108-41-8	3-Chlorotoluene			
106-43-4	4-Chlorotoluene			
32768-54-0	2,3-Dichlorotoluene			
95-73-8	2,4-Dichlorotoluene			
19398-61-9	2,5-Dichlorotoluene			
118-69-4	2,6-Dichlorotoluene			
95-75-0	3,4-Dichlorotoluene			
2077-46-5	2,3,6-Trichlorotoluene			
6639-30-1	2,4,5-Trichlorotoluene			
76057-12-0	2,3,4,5-Tetrachlorotoluene			
875-40-1	2,3,4,6-Tetrachlorotoluene			
1006-31-1	2,3,5,6-Tetrachlorotoluene			
0877-11-2	Pentachlorotoluene			
541-73-1	1,3-Dichlorobenzene			
106-46-7	1,4-Dichlorobenzene			

87-61-6	1,2,3-Trichlorobenzene			
120-82-1	1,2,4-Trichlorobenzene			
108-70-3	1,3,5-Trichlorobenzene			
634-66-2	1,2,3,4-Tetrachlorobenzene			
634-90-2	1,2,3,5-Tetrachlorobenzene			
95-94-3	1,2,4,5-Tetrachlorobenzene			
118-74-1	Hexachlorobenzene			
5216-25-1	p-Chlorobenzotrichloride			
98-07-7	Benzotrichloride			
100-44-7	Benzyl Chloride			
608-93-5	Pentabromobenzene			
95-50-1	1,2-Dichlorobenzene	10 ppm		
<b>Dimethylfumarate</b>				
624-49-7	Dimethylfumarate (DMFu)	0.1 ppm	DMFu is an anti-mold agent used in sachets in packaging to prevent the buildup of mold, especially during shipping.	All Materials: CEN ISO/TS 16186:2012
<b>Dyes (Forbidden &amp; Disperse)</b>				
2475-45-8	C.I. Disperse Blue 1			
2475-46-9	C.I. Disperse Blue 3			
3179-90-6	C.I. Disperse Blue 7			
3860-63-7	C.I. Disperse Blue 26			
56524-77-7	C.I. Disperse Blue 35A			
56524-76-6	C.I. Disperse Blue 35B			
12222-97-8	C.I. Disperse Blue 102			
12223-01-07	C.I. Disperse Blue 106			
61951-51-7	C.I. Disperse Blue 124			
23355-64-8	C.I. Disperse Brown 1			
2581-69-3	C.I. Disperse Orange 1			
730-40-5	C.I. Disperse Orange 3			
82-28-0	C.I. Disperse Orange 11			
12223-33-5				
13301-61-6	C.I. Disperse Orange 37/76/59			
51811-42-8				
85136-74-9	C.I. Disperse Orange 149			
2872-52-8	C.I. Disperse Red 1			
2872-48-2	C.I. Disperse Red 11			
3179-89-3	C.I. Disperse Red 17			
61968-47-6	C.I. Disperse Red 151			
119-15-3	C.I. Disperse Yellow 1	50 ppm each		
2832-40-8	C.I. Disperse Yellow 3			
6300-37-4	C.I. Disperse Yellow 7			
6373-73-5	C.I. Disperse Yellow 9			
6250-23-3	C.I. Disperse Yellow 23			
12236-29-2	C.I. Disperse Yellow 39			
54824-37-2	C.I. Disperse Yellow 49			
54077-16-6	C.I. Disperse Yellow 56			
3761-53-3	C.I. Acid Red 26			
569-61-9	C.I. Basic Red 9			
569-64-2				
2437-29-8	C.I. Basic Green 4		Disperse dyes are a class of water-insoluble dyes that penetrate the fibre system of synthetic or manufactured fibres and are held in place by physical forces without forming chemical bonds. Disperse dyes are used in synthetic fibre (e.g., polyester, acetate, polyamide). Restricted disperse dyes are suspected of causing allergic reactions and are prohibited from use for dyeing of textiles.	All Materials: DIN 54231:2005

10309-95-2				
548-62-9	C.I. Basic Violet 3			
632-99-5	C.I. Basic Violet 14			
2580-56-5	C.I. Basic Blue 26			
1937-37-7	C.I. Direct Black 38			
2602-46-2	C.I. Direct Blue 6			
573-58-0	C.I. Direct Red 28			
16071-86-6	C.I. Direct Brown 95			
60-11-7	4-Dimethylaminoazobenzene (Solvent Yellow 2)			
6786-83-0	C.I. Solvent Blue 4			
561-41-1	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alco			
<b>Dyes, Navy Blue</b>				
118685-33-9	Component 1: C39H23ClCrN7O12S.2Na			
Not allocated	Component 2: C46H30CrN10O20S2.3Na	50 ppm each	Navy blue colorants are regulated and prohibited from use for dyeing of textiles. Index: 611-070-00-2	All Materials: DIN 54231:2005
<b>Flame Retardants</b>				
32534-81-9	Penta-bromodiphenyl ether (pentaBDE)			
32536-52-0	Octa-bromodiphenyl ether (octaBDE)			
1163-19-5	Decabromodiphenyl ether (DecaBDE)			
Various	All other Polybrominated diphenyl ethers (PBDEs)			
79-94-7	Tetrabromobisphenol A (TBBP A)			
59536-65-1	Polybrominated biphenyls (PBBs)			
3194-55-6	Hexabromocyclododecane (HBCDD)	10 ppm each	Flame-retardant chemicals, including the entire class of Organohalogen flame retardants, should no longer be used.	All Materials: EN ISO 17881-1:2016
3296-90-0	2,2-bis(bromomethyl)-1,3-propanediol (BBMP)			
13674-87-8	Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)			
25155-23-1	Trixylyl phosphate (TXP)			
126-72-7	Tris (2,3-dibromopropyl) phosphate (TRIS)			
545-55-1	Tris (1-aziridinyl)-phosphine oxide (TEPA)			
115-96-8	Tris(2-chloroethyl) phosphate (TCEP)			
5412-25-9	Bis (2,3-dibromopropyl) phosphate			
<b>Fluorinated Greenhouse Gases</b>				
Various	See regulation (EC) No 842/2006 for a complete list	0.1 ppm each	Prohibited from use. May be used as foam blowing agents, solvents, fire retardants, and aerosol propellants.	Sample preparation:Purge and trap — thermal desorption or SPME Measurement: GC/MS
<b>Formaldehyde</b>				
50-00-0	Formaldehyde	Adults and Children: 75 ppm Babies:16 ppm	Used in textiles as an anti-creasing and anti-shrinking agent. It is also often used in polymeric resins. Although very rare in Apparel and Footwear, composite wood materials (such as particle board and plywood) must comply with existing California and forthcoming U.S. formaldehyde emission requirements (40 CFR 770). Suppliers are advised to refer to brand-specific requirements for these materials.	All materials except Leather: JIS L 1041-1983 A (Japan Law 112) or EN ISO 14184-1:2011 Leather: prEN ISO 17226-2:2017 with prEN ISO 17226-1:2017 confirmation method in case of interferences. Alternatively, prEN ISO 17226-1:2017 can be used on its own.
<b>Heavy Metals (Ext</b>				
7440-36-0	Antimony (Sb)	Extractable: 30 ppm	Found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.	All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017
7440-38-2	Arsenic (As)	Extractable: 0.2 ppm Total: 100 ppm	Arsenic and its compounds can be used in preservatives, pesticides, and defoliants for cotton, synthetic fibers, paints, inks, trims, and plastics.	Extractable: All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017 Total: All materials except Leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2017

7440-39-3	Barium (Ba)	Extractable: 1000 ppm	Barium and its compounds can be used in pigments for inks, plastics, and surface coatings, as well as in dyeing, mordants, filler in plastics, textile finishes, and leather tanning.	All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017
7440-43-9	Cadmium (Cd)	Leather: Prohibited Extractable: 0.1 ppm Total: 40 ppm	Cadmium compounds are used as pigments (especially in red, orange, yellow and green); as a stabilizer for PVC; and in fertilizers, biocides, and paints.	Extractable: All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017 Total: All materials except Leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2017
7440-47-3	Chromium (Cr)	Extractable: Textiles: 2 ppm Leather footwear for babies: 60 ppm	Chromium compounds can be used as dyeing additives; dye-fixing agents; color-fastness after- treatments; dyes for wool, silk, and polyamide (especially dark shades); and leather tanning.	Textiles: DIN EN 16711-2:2016 Leather: EN ISO 17072-1:2017
18540-29-9	Chromium VI	Not detected. Requirement: < 3 PPM Babies: Not detected (0.5 ppm leachable)	Though typically associated with leather tanning, Chromium VI also may be used in the "after-chroming" process for wool dyeing (Chrome salts applied to acid-dyed wool to improve fastness).	Textiles: DIN EN 16711-2:2016 with EN ISO 17075-1:2017 if Cr is detected Leather: EN ISO 17075-1:2017 and EN ISO 17075-2:2017 for confirmation in case the extract causes interference. Alternatively, EN ISO 17075-2:2017 may be used on its own. Ageing test: ISO 10195:2018 Method A2 is used at brand discretion.
7440-48-4	Cobalt (Co)	Extractable: Adults: 4 ppm Children and babies: 1 ppm	Cobalt and its compounds can be used in alloys, pigments, dyestuff, and the production of plastic buttons.	All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017
7440-50-8	Copper (Cu)	Extractable: Adults: 50 ppm Children and babies: 25 ppm	Copper and its compounds can be found in alloys and pigments, and in textiles as an antimicrobial agent.	All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017
7439-92-1	Lead (Pb)	Extractable: Adults and children: 1 ppm Babies: 0.2 ppm Total: 90 ppm	May be associated with plastics, paints, inks, pigments and surface coatings.	Extractable: All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017 Total: Non-metal: CPSC-CH-E1002-08.3 Metal: CPSC-CH-E1001-08.3 Lead in paint and surface coatings: CPSIA Section 101.16 CFR 1303
7439-97-6	Mercury (Hg)	Extractable: 0.02 ppm Total: 0.5 ppm	Mercury compounds can be present in pesticides and as contaminants in caustic soda (NaOH). They may also be used in paints.	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017 Total: All materials except leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2017
7440-02-0	Nickel (Ni)	Extractable: 1 ppm Release (metal parts): Prolonged skin contact: 0.5 µg/cm2/week Pierced part: 0.2 µg/cm2/week Eyewear frames: 0.5 µg/cm2/week	Nickel and its compounds can be used for plating alloys and improving corrosion-resistance and hardness of alloys. They can also occur as impurities in pigments and alloys.	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017 Release: EN 12472:2005+ A1:2009 and EN 1811:2011+A1:2015 Release (eyewear frames): EN 16128:2015
7782-49-2	Selenium (Se)	Extractable: 500 ppm	May be found in synthetic fibres, paints, inks, plastics and metal trims.	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017
<b>Monomers</b>				
100-42-5	Styrene	500 ppm	Styrene is a precursor for polymerization and may be present in various Styrene copolymers like plastic buttons.	GC/MS Headspace 120 degrees C for 45 minutes or Extraction in Methanol GC/MS, sonication at 60 degrees C for 60 minutes
75-01-4	Vinyl Chloride	1 ppm	Vinyl Chloride is a precursor for polymerization and may be present in various PVC materials like prints, coatings, flip flops, and synthetic leather.	EN ISO 6401:2008
<b>N-Nitrosamines</b>				
62-75-9	N-nitrosodimethylamine (NDMA)	0.5 ppm each	Can be formed as by-product in the production of rubber.	GB/T 24153-2009: determination using GC/MS, with LC/MS/MS verification if positive. Alternatively, LC/MS/MS may be performed on its own.
55-18-5	N-nitrosodiethylamine (NDEA)			
621-64-7	N-nitrosodipropylamine (NDPA)			
924-16-3	N-nitrosodibutylamine (NDBA)			
100-75-4	N-nitrosopiperidine (NPIP)			

930-55-2	N-nitrosopyrrolidine (NPYR)			Alternatively, GC/MS/MS may be performed on its own. pREN 19577:2017
59-89-2	N-nitrosomorpholine (NMOR)			
614-00-6	N-nitroso N-methyl N-phenylamine (NMPHA)			
612-64-6	N-nitroso N-ethyl N-phenylamine (NEPhA)			
<b>Organotin Compounds</b>				
Various	Dibutyltin (DBT)		Class of chemicals combining tin and organics such as butyl and phenyl groups. Organotins are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (e.g., antibacterials), catalysts in plastic and glue production, and heat stabilizers in plastics/rubber. In textiles and apparel, organotins are associated with plastics/rubber, inks, paints, metallic glitter, polyurethane products and heat transfer material.	All Materials: CEN ISO/TS 16179:2012
Various	Dioctyltin (DOT)			
Various	Monobutyltin (MBT)			
Various	Tricyclohexyltin (TCyHT)			
Various	Trimethyltin (TMT)			
Various	Trioctyltin (TOT)			
Various	Tripropyltin (TPT)	1 ppm each		
Various	Tributyltin (TBT)			
Various	Triphenyltin (TPHT)	0.5 ppm each		
<b>Ortho-phenylphenol</b>				
90-43-7	Ortho-phenylphenol (OPP)	1000 ppm	OPP can be used for its preservative properties in leather or as a carrier in dyeing processes.	All materials: 1 M KOH extraction, 16 hours at 90 degrees C, derivatization and analysis § 64 LFGB B 82.02-08 or DIN EN ISO 17070:2015
<b>Ozone Depleting Substances</b>				
Various	See Regulation (EC) No 1005/2009 for a complete list.	5 ppm	Prohibited from use. Ozone-depleting substances have been used as a foaming agent in PU foams as well as a dry-cleaning agent.	All materials: GC/MS headspace 120 degrees C for 45 minutes
<b>Perfluorinated and Polyfluorinated Chemicals (PFCs)</b>				
Various	Perfluorooctane Sulfonate (PFOS) and related substances	1 µg/m <sup>2</sup>	PFOA and PFOS may be present as unintended byproducts in long-chain and short-chain commercial water-, oil-, and stain-repellent agents. PFOA may also be used in polymers like Polytetrafluoroethylene (PTFE). The area-based limit for PFOA will be superseded by Commission Regulation (EU) 2017/1000 and removed in 2023.	All materials: prISO FDIS 23702-1: 2018
Various	Perfluorooctanoic Acid (PFOA) and its salts	1 µg/m <sup>2</sup> 25 ppb total		
Various	PFOA-related substances	1000 ppb total		
<b>Pesticides, agricultural</b>				
Various	See Appendix A for a complete list.	0.5 ppm each	May be found in natural fibers, primarily cotton.	All materials: ISO 15913/DIN 38407 F2 or EPA 8081/EPA 8151A or BVL L 00.00-34:2010-09
<b>Phthalates</b>				
28553-12-0	Di-Iso-nonylphthalate (DINP)	500 ppm each Total: 1000 ppm	Esters of ortho-phthalic acid (Phthalates) are a class of organic compound commonly added to plastics to increase flexibility. They are sometimes used to facilitate the molding of plastic by decreasing its melting temperature. Phthalates can be found in: • Flexible plastic components (e.g., PVC) • Print pastes • Adhesives • Plastic buttons • Plastic sleeveings • Polymeric coatings Find more information about additional Phthalates on the REACH substances of very high concern (SVHC) candidate list, which is updated frequently.	Sample preparation for all materials: CPSC-CH-C1001-09.4 Measurement: Textiles: GC-MS, EN ISO 14389:2014 (7.1 Calculation based on weight of print only; 7.2 Calculation based on weight of print and textile if print cannot be removed). All materials except textiles: GC/MS
117-84-0	Di-n-octylphthalate (DNOP)			
117-81-7	Di(2-ethylhexyl)-phthalate (DEHP)			
26761-40-0	Diisodecylphthalate (DIDP)			
85-68-7	Butylbenzylphthalate (BBP)			
84-74-2	Dibutylphthalate (DBP)			
84-69-5	Diisobutylphthalate (DIBP)			
84-75-3	Di-n-hexylphthalate (DnHP)			
84-66-2	Diethylphthalate (DEP)			
0131-11-3	Dimethylphthalate (DMP)			
131-18-0	Di-n-pentyl phthalate (DPENP)			
84-61-7	Dicyclohexyl phthalate (DCHP)			
71888-89-6	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich			
117-82-8	Bis(2-methoxyethyl) phthalate			
605-50-5	Diisopentyl phthalate (DIPP)			
131-16-8	Dipropyl phthalate (DPRP)			



27554-26-3	Diisooctyl phthalate (DIOP)			
68515-50-4	Diisoheptyl phthalate (DIHP)			
68515-42-4	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)			
84777-06-0	1,2-Benzenedicarboxylic acid Dipentyl ester, branched and linear			
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>				
83-32-9	Acenaphthene	No individual restriction	PAHs are natural components of crude oil and are common residues from oil refining. PAHs have a characteristic smell similar to that of car tires or asphalt. Oil residues containing PAHs are added to rubber and plastics as a softener or extender and may be found in rubber, plastics, lacquers and coatings. PAHs are often found in the outsoles of footwear and in printing pastes for screen prints. PAHs can be present as impurities in Carbon Black. They also may be formed from thermal decomposition of recycled materials during reprocessing **Naphthalene: Dispersing agents for textile dyes may contain high residual naphthalene concentrations due to the use of low-quality Naphthalene derivatives (e.g., poor- quality Naphthalene Sulphonate Formaldehyde condensation products).	All materials: AFPS GS 2014
208-96-8	Acenaphthylene			
0120-12-7	Anthracene			
191-24-2	Benzo(g,h,i)perylene			
86-73-7	Fluorene			
206-44-0	Fluoranthene			
193-39-5	Indeno(1,2,3-cd)pyrene			
91-20-3	Naphthalene**			
85-01-8	Phenanthrene			
129-00-0	Pyrene			
56-55-3	Benzo(a)anthracene	1 ppm each Child care articles: 0.5 ppm each		
50-32-8	Benzo(a)pyrene			
205-99-2	Benzo(b)fluoranthene			
192-97-2	Benzo(e)pyrene			
205-82-3	Benzo(j)fluoranthene			
0207-08-09	Benzo(k)fluoranthene			
0218-01-09	Chrysene			
53-70-3	Dibenzo(a,h)anthracene	Total: 10 ppm		
<b>Quinoline</b>				
91-22-5	Quinoline	50 ppm	Found as an impurity in polyester and some dyestuffs.	All materials: AFPS GS 2014
<b>Solvents/Residuals</b>				
68-12-2	Dimethylformamide (DMFa)	500 ppm	Solvent used in plastics, rubber, and polyurethane (PU) coating. Water- based PU does not contain DMFa and is therefore preferable.	All materials: DIN CEN ISO/TS 16189:2013
75-12-7	Formamide		Byproduct in the production of EVA foams.	
127-19-5	Dimethylacetamide (DMAC)		Solvent used in the production of elastane fibers and sometimes as substitute for DMFa.	
872-50-4	N-Methyl-2-pyrrolidone (NMP)		1000 ppm each	
<b>UV Absorbers / Stabilizers</b>				
3846-71-7	UV 320	1000 ppm each	PU foam materials such as open cell foams for padding. Used as UV-absorbers for plastics (PVC, PET, PC, PA, ABS, and other polymers), rubber, polyurethane.	ADIN EN 62321-6:2016-05 (Extraction in THF, analysis by GC/MS)
3864-99-1	UV 327			
25973-55-1	UV 328			
36437-37-3	UV 350			
<b>Volatile Organic Compounds (VOCs)</b>				
71-43-2	Benzene	5 ppm	These VOCs should not be used in textile auxiliary chemical	
75-15-0	Carbon Disulfide			
56-23-5	Carbon Tetrachloride			
67-66-3	Chloroform			
108-94-1	Cyclohexanone			
0107-06-02	1,2-Dichloroethane			
75-35-4	1,1-Dichloroethylene			
100-41-4	Ethylbenzene			

76-01-7	Pentachloroethane	Total: 1000 ppm	<p>These VOCs should not be used in textile auxiliary chemical preparations.</p> <p>They are associated with solvent-based processes such as solvent-based polyurethane coatings and glues/adhesives.</p> <p>They should not be used for any kind of facility cleaning or spot cleaning.</p>	<p>For general VOC screening: GC/MS headspace 45 minutes at 120 degrees C</p>
630-20-6	1,1,1,2- Tetrachloroethane			
79-34-5	1,1,2,2- Tetrachloroethane			
127-18-4	Tetrachloroethylene (PERC)			
108-88-3	Toluene			
71-55-6	1,1,1- Trichloroethane			
79-00-5	1,1,2- Trichloroethane			
79-01-6	Trichloroethylene			
1330-20-7				
108-38-3				
95-47-6				
106-42-3	Xylenes (meta-, ortho-, para-)			