

BESTSELLER Restricted Substances List (RSL)

27 April 2020

Applied on all product testing from 1st May 2020 onwards

Introduction

All products supplied to BESTSELLER must meet legal requirements in all markets that BESTSELLER brands deliver to.

BESTSELLER's Restricted Substances List (RSL) describes the limitation and prohibition of substances in products manufactured for BESTSELLER. The RSL has been developed based on the law, a concern for the health of our customers, the working conditions inside the factories producing our goods, and the preservation of the environment – both in production countries, and where our products are sold.

The listed values and additional notes in this document are applicable to all suppliers manufacturing or providing products for BESTSELLER.

The RSL applies to and covers all garments, shoes, accessories and all parts of products e.g. zippers, buttons, rivets and labels (list is indicative not all-inclusive). Suppliers must also ensure that all samples meet the requirements set in the RSL.

Suppliers must comply with all legislation, product requirements and manufacturing requirements in all countries where they are producing. All labour, workplace and environmental laws in the country of production must be followed.

It is the responsibility of the supplier to ensure that products they supply to BESTSELLER meet these requirements, which must be fully communicated to and controlled by all subcontractors and suppliers of raw materials and components throughout the supply chain.

Suppliers should note that the RSL will be updated when necessary. Messages and updates regarding the RSL will be placed on the Supplier Portal.

CHANGES AND ADDITIONS: BESTSELLER RSL 2020

CAS	SUBSTANCE	CHANGES OR ADDITIONS	PAGE
Various	Alkylphenol (AP)	Changed test method to EN ISO 21084:2019 for textiles and Leather. Analysis for Polymers and all other materials changed to EN ISO 21084:2019.	7
Various	Alkylphenol Ethoxylates (APEOs)	Changed test method to EN ISO 18218:2015 with quantification according to EN ISO 18254:2016 for Leather.	8
Various	Chlororganic Carriers	Changed test method to EN 17137:2018 for all materials.	10
84852-53-9	Flame retardants	Called out Decabromodiphenyl Ethane (DBDPE) specifically in list of Flame Retardants.	12
Various	Heavy Metals for Jewelry	Added new section for Heavy Metals in jewelry with test method ASTM F2923:2014	16
100-42-5	Monomers	Deleted GC/MS headspace method for Styrene	17
Various	Perfluorinated and Polyfluorinated Chemicals (PFCs)	Changed test method for all materials to EN 23702-1: 2018. Added appendix of PFOA- and PFOS-related substances.	19
68648-93-1	Phthalates	Added new SVHC Phthalates under REACH: <ul style="list-style-type: none"> • 1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate; • 1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters; • 1,2-dicarboxylic acid, di-C6-10-alkyl esters, and n-pentyl-isopentylphthalate (nPIPP) 	19-20
68515-51-5			
776297-69-9			
91-22-5	Quinoline	Changed test method to DIN 54231:2005 with methanol extraction at 70 degrees C.	21
2440-22-4	UV Absorbers / Stabilizers	Added Drometrizole for informational purposes only.	22

In this RSL version, also glue is included as a material.

Important points to note

EU REACH Substances of Very High Concern

Based on scientific evidence indicating potential hazards to human health or the environment, the European Commission (EC) and European Union (EU) member states propose substances of very high concern (SVHCs) for placement on the European Chemicals Agency (ECHA) “Candidate List of Substances of Very High Concern for Authorisation”.

Concerning the REACH ‘Substances of Very High Concern’ (SVHCs) the BESTSELLER RSL limit for all products and all packaging is **1000 ppm (0.1%) for each substance on the list**, unless a lower limit is specified in this document.

ECHA periodically updates the Candidate List; find the most current version at <https://www.echa.europa.eu/candidate-list-table>.

Odour

BESTSELLER expects that all products have a ‘product specific smell’, which can be tested with odour test SNV195 651. Strong smells from garments, shoes or accessories can occur through a possible unauthorized chemical content, or bad practice in washing or airing processes prior to shipment. A non-product specific odour will be treated as a quality issue – and even if the style is meeting the RSL, products classed as 4 or 5 will be rejected.

CLASSIFICATION
1= odourless
2= weak
3= tolerable
4= annoying
5= intolerable

Mould

Spores and mycelia of mould should not be detected in any products. Key requirements on Silica gel bags and Anti-mold prevention are described in the Bestseller Manual.

Transportation of goods – Packaging, Containers and cargo

Fumigating, gassing or spraying cargo or containers containing BESTSELLER products with any chemicals is banned. Levels of chemicals are measured when the container reaches the port of destination. Levels must not exceed acceptable health and safety levels. Regardless of the source, all costs in connection with cleaning containers, damage or loss of products and any resulting lost profit will be claimed.

All product packaging and packaging additions used for storage, labelling and transportation of BESTSELLER articles must meet legal requirements for all countries of shipment.

BESTSELLER has implemented a Packaging RSL which is available on the Supplier Portal. Please refer to BESTSELLER Supplier Manual for details on packaging standards and expectations.

The use of PVC is banned in all products and packaging.

Chemical Control

In order to comply with BESTSELLER's Restricted Substances List (RSL), it is important that suppliers have full control and are aware of all chemicals that are being used throughout the entire production network.

Suppliers must ensure that all subcontractors, suppliers of materials and accessories (including labels and packaging), dye-houses, print-houses, tanneries, carriers, etc., are fully aware of the RSL and agree to follow. Suppliers must ensure that all parts of their production network have the latest version of our RSL and that they assist in educating all parts of the supply chain in meeting these requirements – and only work with suppliers that are able to do so. Suppliers should work to understand the chemical aspects of the supply chain to effectively identify and control the risk areas.

Suppliers should select professional and well-run suppliers of materials and dyeing /printing facilities, and ensure the use of dyestuffs, printing chemicals and any other production-process chemicals are from reputable and well-known manufacturers.

Suppliers must assume responsibility in ensuring that the production network is constantly informed of BESTSELLER's requirements – and that the materials coming into the factory are able to meet the standard set in the RSL. Material data sheets should be acquired from dye-houses and print-houses to ensure that no banned or restricted chemicals are used.

Manufacturing Restricted Substances List (MRSL)

BESTSELLER have adopted the industry-aligned MRSL from ZDHC group as part of our commitment to safer chemistry use during manufacturing (<https://mrsl.roadmaptozero.com>). This BESTSELLER MRSL will be implemented in the spring, 2020.

RSL Testing Programme

BESTSELLER requires chemical tests on products and has a comprehensive RSL testing programme in place. You can find further information on these testing requirements in the **RSL Testing Programme** document which is available on the supplier portal and from your regional sourcing office.

Testing and monitoring is managed through the local sourcing offices. All suppliers must meet agreed testing requirements - this is non-negotiable when producing articles for BESTSELLER.

Definition of ages

	Age Range	Cl Size (for reference)
Babies	0 to 36 months	≤98
Children	36 months to 14 years	104 - 164
Adults	14 years and older	>164

Tables of Restricted Substances

CAS No.	Substance	Limits Raw Material & Finished Product	Potential Uses Textile Processing for Apparel & Footwear	Test Method Sample Preparation & Measurement	Reporting Limits Limits above which test results should be reported
Acetophenone and 2-Phenyl-2-Propanol					
98-86-2	Acetophenone	50 ppm each	Potential breakdown products in EVA foam when using dicumyl peroxide as a cross-linking agent.	Extraction in acetone or methanol GC/MS, sonication for 30 minutes at 60 degrees C	25 ppm each
617-94-7	2-Phenyl-2-propanol				
Acidic and alkaline substances					
Various	pH-value	Textiles: 4.0 - 7.5 >3yrs footwear & accessories: 4-8.5 Leather: 3.5 - 7.0 >3yrs footwear & accessories: 3.2-7.0	The pH-value is a characteristic number, ranging from pH 1 to pH 14, indirectly showing the content of acidic or alkaline substances in a product. pH-values below 7 indicate sources of acidic substances and values above 7 indicated sources of alkaline substances. To avoid irritation or chemical burns of skin the pH-value of products shall be in the range of the human skin with ca. pH 5.5. Limits cited are recommended to comply with all global regulations for all products.	Textiles and Artificial leather: EN ISO 3071:2006 (KCl Solution) Leather: EN ISO 4045: 2018	NA
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs), including all isomers					
Various	Nonylphenol (NP), mixed isomers	Total: 10 ppm	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 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.	Textiles and Leather: EN ISO 21084:2019	Sum of NP & OP: 3 ppm
Various	Octylphenol (OP), mixed isomers			Polymers: 1 g sample/20 mL THE, sonication for 60 minutes at 70°C analysis according to EN ISO 21084:2019	

Various	Nonylphenol ethoxylates (NPEOs)	Total: 100 ppm	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 covers EU legislation restricting NPEOs effective 3 February 2021 and provides advance warning to suppliers.	All materials except leather: EN ISO 18254-1:2016, determination of APEO using LC/MS or LC/MS/MS Leather: EN ISO 18218-1:2015 with quantification according to EN ISO 18254-1:2016	Sum of NPEO & OPEO: 20 ppm
Various	Octylphenol ethoxylates (OPEOs)				
Azo-amines and Arylamine salts					
92-67-1	4-Aminobiphenyl	20 ppm each	Azo dyes and pigments are colourants 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 of 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	5 ppm each
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				
615-05-4	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-Toluylendiamine				
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				
Bisphenols					
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°C, analysis with LC/MS	1 ppm
80-09-1	Bisphenol S (BPS)	For informational purposes only – testing of polycarbonate materials recommended to assess content levels	BPA alternatives with known or suspected similar hazards used in the production of epoxy resins, polycarbonate plastics, flame retardants and PVC. Applicable to food and drink containers, and items intended to come into contact with oral cavity.		1 ppm each
620-92-8	Bisphenol F (BPF)				
1478-61-1	Bisphenol AF (BPAF)				
Chlorinated Paraffins					
85535-84-8	Short-chain chlorinated Paraffins (SCCP) (C10-C13)	100 ppm	May be used as softeners, flame retardants or as fat liquoring agents in leather production. Also used as plasticizer in polymer production.	All materials: Combined CADS / ISO 18219:2015 method V1:06/17 (extraction by ISO 18219 and analysis by GC-NCI-MS)	30 ppm
85535-85-9	Medium-chain chlorinated Paraffins (MCCP) (C14-C17)	1000 ppm			100 ppm
Chlorophenols					
15950-66-0	2,3,4-Trichlorophenol (TriCP)	0.5 ppm each	Chlorophenols are polychlorinated compounds used as preservatives or pesticides. Pentachlorophenol (PCP), tetrachlorophenol (TeCP), and trichlorophenols (TriCP) are sometimes used to prevent mold and kill insects when growing cotton and when storing/transporting fabrics. PCP, TeCP and TriCP can also be used as in can preservatives in print pastes and other chemical mixtures.	All materials: 1 M KOH extraction, 16 hours at 90 °C, derivatization and analysis § 64 LFGB B 82.02-08 or DIN EN ISO 17070:2015	0.05 ppm each
933-78-8	2,3,5-Trichlorophenol (TriCP)				
933-75-5	2,3,6-Trichlorophenol (TriCP)				
95-95-4	2,4,5-Trichlorophenol (TriCP)				
88-06-2	2,4,6-Trichlorophenol (TriCP)				
609-19-8	3,4,5-Trichlorophenol (TriCP)				
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)				
87-86-5	Pentachlorophenol (PCP)				

Chlororganic Carriers					
95-49-8	2-Chlorotoluene	Total: 2 ppm	Chlorobenzenes and chlorotoluenes (chlorinated aromatic hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/polyester fibers. They can also be used as solvents.	All materials: EN 17137:2018	0.2 ppm each
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				
877-11-2	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				
608-93-5	Pentachlorobenzene				
118-74-1	Hexachlorobenzene				
5216-25-1	p-chlorobenzotrichloride				
98-07-7	Benzotrichloride				
100-44-7	benzyl chloride				
95-50-1	1,2-Dichlorobenzene				
Dimethylfumarate					
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	0.03 ppm

Dyes, Forbidden and Disperse					
2475-45-8	C.I. Disperse Blue 1	50 ppm each	Disperse dyes are a class of water-insoluble dyes that penetrate the fiber system of synthetic or manufactured fibers and are held in place by physical forces without forming chemical bonds. Disperse dyes are used in synthetic fiber (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	15 ppm each
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				
12223-01-7	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	C.I. Disperse Orange 37/76/59				
13301-61-6					
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				
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	C.I. Basic Green 4				
2437-29-8					
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 alcohol				
Dyes, Navy Blue					
118685-33-9	Component 1: C39H23ClCrN7O12S·2Na	50 ppm each	Navy blue colourants are regulated and are prohibited from use for dyeing of textiles. (Index 611-070-00-2)	All materials: DIN 54231:2005	15 ppm each
Not allocated	Component 2: C46H30CrN10O20S2·3Na				
Flame Retardants					
84852-53-9	Decabromodiphenyl ethane (DBDPE)	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 EN ISO 17881-2:2016	5 ppm each
32534-81-9	Pentabromodiphenyl ether (PentaBDE)				
32536-52-0	Octabromodiphenyl ether (OctaBDE)				
1163-19-5	Decabromodiphenyl ether (DecaBDE)				
various	All other Polybrominated diphenyl ethers (PBDE)				
79-94-7	Tetrabromobisphenol A (TBBP A)				
59536-65-1	Polybromobiphenyls (PBB)				
3194-55-6	Hexabromocyclododecane (HBCDD)				
3296-90-0	2,2-bis(bromomethyl)-1,3- propanediol (BBMP)				
13674-87-8	Tris(1,3-dichloro-isopropyl) 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 (BDBPP)				
Fluorinated Greenhouse Gases					
Various	See Regulation (EC) No 842/2006 for a complete list.	0.1 ppm each	May be used as foam blowing agents, solvents, fire retardants, and aerosol propellants and are prohibited from use.	Sample preparation: Purge and trap — thermal desorption or SPME Measurement: GC/MS	0.1 ppm each
Formaldehyde					
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 & footwear, composite wood materials, e.g., particle board and plywood, must comply with existing California and forthcoming US formaldehyde emission requirements (40 CFR 770).	All materials except leather: 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 17226-1:2019 can be used on its own. Glued natural material: EN ISO 717-3.	16 ppm
Heavy Metals (non-jewelry)					
7440-36-0	Antimony (Sb)	Extractable: 30 ppm	Found in or used as a catalyst in polymerisation 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	Extractable: 3 ppm

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	Extractable: 0.1 ppm Total: 10 ppm
7440-39-3	Barium (Ba)	Extractable: 1000 ppm	Barium and its compounds can be used in pigments for inks, plastics, surface coatings, as well as in dyeing, mordant, filler in plastics, textile finish, and leather tanning.	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017	Extractable: 100 ppm
7440-43-9	Cadmium (Cd)	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	Extractable: 0.03 ppm Total: 5 ppm
7440-47-3	Chromium (Cr)	Extractable: Textiles: 2 ppm Leather: 60ppm	Chromium compounds can be used as dyeing additives, dye-fixing agents, colour fastness, after-treatments, dyes for wool, silk and polyamide (especially dark shades) and leather tanning.	All materials except leather: DIN EN 16711-2:2016 Leather: EN ISO 17072-1:2017	Extractable: 0.5 ppm
18540-29-9	Chromium VI	Extractable: Leather: 3 ppm Textile: 0.5ppm	Though typically associated with leather tanning, Chromium VI also may be used in the dyeing of wool (after the chroming process).	All materials except leather: 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	Extractable: Leather: 1 ppm Textiles: 0.5 ppm

7440-48-4	Cobalt (Co)	Extractable: Adults: 4 ppm Children/baby: 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	Extractable: 0.3 ppm
7440-50-8	Copper (Cu)	Extractable: Adults: 50 ppm Children/babies: 25 ppm Inorganic: no requirements	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	Extractable: 5 ppm
7439-92-1	Lead (Pb)	Extractable: Adults and children: 1 ppm Babies: 0.2 ppm Total: 90 ppm Glass: 500ppm	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 coating: CPSIA Section 101 16 CFR 1303	Extractable: 0.1 ppm Total: 10 ppm
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	Extractable: 0.01 ppm Total: 0.1 ppm

7440-02-0	Nickel (Ni)	Extractable: 1 ppm Release (metal parts): Prolonged skin contact and Eyewear frames: 0.5 µg/cm ² /week Pierced part: 0.2 µg/cm ² /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	Extractable & Release: 0.1 ppm
7782-49-2	Selenium (Se)	Extractable: 500 ppm	May be found in synthetic fibers, paints, inks, plastics and metal trims.	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2017	Extractable: 50 ppm
Heavy Metals, Jewelry					
7440-36-0	Antimony (Sb)	Paints & Coatings: Extractable: 60 ppm	Antimony and its compounds can be used as a Flame Retardant in paints, as well as a colorant in pigments.	ASTM F2923:2014*	Extractable: 5 ppm
7440-38-2	Arsenic (As)	Paints & Coatings: Extractable: 25 ppm	Arsenic and its compounds can be used in paints and inks.	ASTM F2923:2014*	Extractable: 5 ppm
7440-39-3	Barium (Ba)	Paints & Coatings: Extractable: 1000 ppm	Barium and its compounds can be used in pigments for inks.	ASTM F2923:2014*	Extractable: 100 ppm
7440-43-9	Cadmium (Cd)	Paints & Coatings: Extractable: 75 ppm Total: 40 ppm	Cadmium and its compounds are used as pigments (especially in red, orange, yellow and green). It can also be used in alloys to improve hardness or be found as a contaminant.	ASTM F2923:2014*	Extractable: 5 ppm Total: 5 ppm
7440-47-3	Chromium (Cr)	Paints & Coatings: Extractable: 60 ppm	Chromium and its compounds can be used as pigments in paints. It can also be used as part of alloys such as stainless steel.	ASTM F2923:2014*	Extractable: 5 ppm

7439-92-1	Lead (Pb)	Substrates, Paints & Coatings: Extractable: 60 ppm Metal: Total: 90 ppm	Lead and its compounds may be associated with plastics, paints, inks, pigments, and surface coatings. It can also be found in metals as a contaminant.	ASTM F2923:2014*	Total: 10 ppm
7439-97-6	Mercury (Hg)	Substrates, Paints & Coatings: Extractable: 60 ppm Metal: Total: 0.5 ppm	Mercury compounds may be used in paints and can be found as a contaminant in alloys.	ASTM F2923:2014*	Extractable: 5 ppm Total: 0.1 ppm
7440-02-0	Nickel (Ni)	Release (metal parts): Prolonged skin contact: 0.5 µg/cm ² /week Pierced part: 0.2 µg/cm ² /week	Nickel and its compounds can be used for plating alloys and improving the corrosion-resistance and hardness of alloys. They can also occur as impurities in pigments and alloys.	EN 12472:2005+ A1:2009 and EN 1811:2011+A1:2015*	Release: 0.1 µg/cm ² /week
7782-49-2	Selenium (Se)	Paints & Coatings: Extractable: 500 ppm	Selenium and its compounds may be found in paints and inks.	ASTM F2923:2014*	Extractable: 50 ppm
Monomers					
100-42-5	Styrene	500 ppm	Styrene is a precursor for polymerization and may be present in various styrene-copolymers like plastic buttons.	Extraction in Methanol GC/MS, sonication for 60 minutes at 60°C	50 ppm
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	1 ppm

N-Nitrosamines								
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. EN ISO 19577:2019	0.5 ppm each			
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)							
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)							
Organotin Compounds								
Various	Dibutyltin (DBT)	1 ppm each	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	0.1 ppm each			
Various	Diocetyl tin (DOT)							
Various	Monobutyltin (MBT)							
Various	Tricyclohexyltin (TCyHT)							
Various	Trimethyltin (TMT)							
Various	Triocetyl tin (TOT)							
Various	Tripopyl tin (TPT)	0.5 ppm each						
Various	Tributyltin (TBT)							
Various	Triphenyltin (TPhT)							
Ortho-phenylphenol								
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 °C, derivatization and analysis § 64 LFGB B 82.02-08 or DIN EN ISO 17070:2015	100 ppm			
Ozone-depleting Substances								
Various	See Regulation (EC) No 1005/2009 for a complete list.	5 ppm	Ozone depleting substances have been used as a foaming agent in PU foams as well as a dry-cleaning agent and are prohibited from use.	All materials: GC/MS headspace 120°C for 45 minutes	5 ppm			

Perfluorinated and Polyfluorinated Chemicals (PFCs)					
Various	Perfluorooctane Sulfonate (PFOS) and related substances	1 µg/m ²	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. Refer to Appendix A for a full list of substances and CAS Numbers included in this restriction. In addition to this list, all PFOA-related substances are prohibited from use.	All materials: EN 23702-1:2018	1 µg/m ² each
Various	Perfluorooctanoic Acid (PFOA) and its salts	1 µg/m ² 25 ppb total			1000 ppb total
Various	PFOA-related substances	1000 ppb total			
Pesticides, Agricultural					
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	0.5 ppm each
Phthalates					
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 moulding 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 SVHC list, which is updated frequently.	Sample preparation for all materials: CPSC-CH-C1001-09.4 Measurement: Textile: 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 textile: GC/MS	50 ppm each
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)				
131-11-3	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)				
71850-09-4	Diisohexyl phthalate (DIHP)				
68515-50-4	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear				
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				
68648-93-1	1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate;				
68515-51-5	1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters;				
776297-69-9	1,2-dicarboxylic acid, di-C6-10-alkyl esters				
	n-Pentyl-isopentylphthalate (nPIPP)				

Polycyclic Aromatic Hydrocarbons (PAHs)						
83-32-9	Acenaphthene	No individual restriction	Total: 10 ppm	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	All materials: AFPS GS 2014	0.2 ppm each
208-96-8	Acenaphthylene					
120-12-7	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 Babies: 0.5ppm each	Total: 10 ppm	**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	0.2 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					
207-08-9	Benzo(k)fluoranthene					
218-01-9	Chrysene					
53-70-3	Dibenzo(a,h)anthracene					
Quinoline						
91-22-5	Quinoline	50 ppm		Found as an impurity in polyester and some dyestuffs.	All materials: DIN 54231:2005 Methanol extraction at 70 degrees C	10 ppm
PVC/PVDC						
9002-85-1	Polyvinyl chloride (PVC)	Not allowed			Belstein Test – if positive then FTIR must be performed	
9002-86-2	Polyvinylidene chloride (PVDC)					
Solvents/Residuals						
68-12-2	Dimethylformamide (DMFa)	500 ppm		DMFa is a 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	50 ppm each

75-12-7	Formamide	1000 ppm each	Byproduct in the production of EVA foams.		
127-19-5	Dimethylacetamide (DMAC)		DMAC is a solvent used in the production of elastane fibers and sometimes as substitute for DMFa.		
872-50-4	N-Methyl-2-pyrrolidone (NMP)		Industrial solvent utilized in production of water-based polyurethanes and other polymeric materials. May also be used for surface treatment of textiles, resins, and metal coated plastics or as a paint stripper.		
UV Absorbers / Stabilizers					
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.	DIN EN 62321-6:2016-05 (Extraction in THF, analysis by GC/MS)	500 ppm each
3864-99-1	UV 327				
25973-55-1	UV 328				
36437-37-3	UV 350				
2440-22-4	Drometrizole	For informational purposes only. AFIRM recommends testing assess content level.	Used as UV Absorbers for Plastics (PVC, PET, PC, PA, ABS, and other Polymers), Rubber and Polyurethane.		
Volatile Organic Compounds (VOCs)					
71-43-2	Benzene	5 ppm	These VOCs should not be used in textile auxiliary chemical preparations. They are also associated with solvent-based processes such as solvent-based polyurethane coatings and glues/adhesives. They should not be used for any kind of facility cleaning or spot cleaning.	For general VOC screening: GC/MS headspace 45 minutes at 120 degrees C	Benzene: 1 ppm Other: 20 ppm each
75-15-0	Carbon Disulfide	Total: 500 ppm			
56-23-5	Carbon tetrachloride				
67-66-3	Chloroform				
108-94-1	Cyclohexanone				
107-06-2	1,2-Dichloroethane				
75-35-4	1,1-Dichloroethylene				
100-41-4	Ethylbenzene				
76-01-7	Pentachloroethane				
630-20-6	1,1,1,2- Tetrachloroethane				
79-34-5	1,1,2,2- Tetrachloroethane				
127-18-4	Tetrachloroethylene (PER)				
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	Xylenes (meta-, ortho-, para-)				

Appendix A: Perfluorinated and Polyfluorinated Chemicals (PFCs)

CAS No.	Substance Name	CAS No.	Substance Name
PFOS and Related Substances		PFOA and Its Salts	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	335-67-1	Perfluorooctanic acid (PFOA)
2795-39-3	Perfluorooctanesulfonic acid, potassium salt (PFOS-K)	335-95-5	Sodium perfluorooctanoate (PFOA-Na)
29457-72-5	Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	2395-00-8	Potassium perfluorooctanoate (PFOA-K)
29081-56-9	Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄)	335-93-3	Silver perfluorooctanoate (PFOA-Ag)
70225-14-8	Perfluorooctanesulfonate diethanolamine salt (PFOS-NH(OH) ₂)	335-66-0	Perfluorooctanoyl fluoride (PFOA-F)
56773-42-3	Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄)	3825-26-1	Ammonium pentadecafluorooctanoate (APFO)
4151-50-2	N-Ethyl perfluorooctane sulfonamide (N-Et-FOSA)	PFOA-related Substances	
31506-32-8	N-Methyl perfluorooctane sulfonamide (N-Me-FOSA)		
1691-99-2	N-Ethyl perfluorooctane sulfonamide ethanol (N-Et-FOSE)	39108-34-4	1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)
24448-09-7	N-Methyl perfluorooctane sulfonamide ethanol (N-Me-FOSE)	376-27-2	Methyl perfluorooctanoate (Me-PFOA)
307-35-7	Perfluorooctane sulfonyl fluoride (PFOSF/ POSF)	3108-24-5	Ethyl perfluorooctanoate (Et-PFOA)
754-91-6	Perfluorooctane sulfonamide (PFOSA)	678-39-7	1H,1H,2H,2H-Perfluoro-1 decanol (8:2 FTOH)
		27905-45-9	1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)
		1996-88-9	1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)

Appendix B: Pesticides, Agricultural

CAS No.	Pesticide Name	CAS No.	Pesticide Name	CAS No.	Pesticide Name
93-72-1	2-(2,4,5-trichlorophenoxy) propionic acid, its salts and compounds; 2,4,5-TP	1085-98-9	Dichlofluanide	465-73-6	Isodrine
93-76-5	2,4,5-T	120-36-5	Dichloroprop	4234-79-1	Kelevane
94-75-7	2,4-D	115-32-2	Dicofol	143-50-0	Kepone
309-00-2	Aldrine	141-66-2	Dicrotophos	58-89-9	Lindane
86-50-0	Azinophosmethyl	60-57-1	Dieldrine	121-75-5	Malathione
2642-71-9	Azinophosethyl	60-51-5	Dimethoate	94-74-6	MCPA
4824-78-6	Bromophos-ethyl	88-85-7	Dinoseb, its salts and acetate	94-81-5	MCPB
2425-06-1	Captafol	63405-99-2	DTTB (4, 6-Dichloro-7 (2,4,5-trichloro-phenoxy) -2-Trifluoro methyl benz imidazole)	93-65-2	Mecoprop
63-25-2	Carbaryl	115-29-7	Endosulfan	10265-92-6	Metamidophos
510-15-6	Chlorbenzilat	959-98-8	Endosulfan I (alpha)	72-43-5	Methoxychlor
57-74-9	Chlordane	33213-65-9	Endosulfan II (beta)	2385-85-5	Mirex
6164-98-3	Chlordimeform	72-20-8	Endrine	6923-22-4	Monocrotophos
470-90-6	Chlorfenvinphos	66230-04-4	Esfenvalerate	298-00-0	Parathion-methyl
1897-45-6	Chlorthalonil	106-93-4	Ethylendibromid	1825-21-4	Pentachloroanisole
56-72-4	Coumaphos	56-38-2	Ethylparathione; Parathion	7786-34-7	Phosdrin/Mevinphos
68359-37-5	Cyfluthrin	51630-58-1	Fenvalerate	72-56-0	Perthane
91465-08-6	Cyhalothrin	1336-36-3	Halogenated biphenyls, including Polychlorinatedbiphenyl (PCB)	31218-83-4	Propethamphos
52315-07-8	Cypermethrin	81161-70-8	Heptachlor	41198-08-7	Profenophos
78-48-8	S,S,S-Tributyl phosphorotrithioate (Tribufos)	76253-60-6		13593-03-8	Quinalphos
52918-63-5	Deltamethrin	76-44-8		82-68-8	Quintozene
53-19-0	DDD	Various	Halogenated naphthalenes, including polychlorinated naphthalenes (PCNs)	8001-50-1	Strobane
72-54-8	DDD DDE	1024-57-3	Heptachloroepoxide	297-78-9	Telodrine
3424-82-6		319-84-6	a-Hexachlorocyclohexane with and without Lindane	8001-35-2	Toxaphene
72-55-9	DDE DDT	319-85-7	b-Hexachlorocyclohexane with and without Lindane	731-27-1	Tolyfluanide
50-29-3		319-86-8	g-Hexachlorocyclohexane with and without Lindane	1582-09-8	Trifluraline
789-02-6	DDT	118-74-1	Hexachlorobenzene		
333-41-5	Diazinone				