

PART II: REQUIREMENT FOR TEXTILE & LEATHER ITEMS

TABLES OF RESTRICTED SUBSTANCES

How to read the tables of restricted substances

The tables are divided into sections of Property Lending & Process Chemicals, Biocidal Agents, Restrictions on Packaging etc.

- The substances in each section are listed in alphabetic order for easy reference.
- Marimekko's maximum limits are defined, as well as the units to be used to express the values. These units correspond with the units used in the related test method.
- The tables also provide information about the requirements in different countries and about where the substances are typically used.
- The expressions are explained in the Explanatory Section & Abbreviations

TABLES OF CHEMICALS

Acetophenone & 2-Phenyl-2-Propanol					PROCESS CHEMICAL	
Restricted Substance		Marimekko limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	50 mg/kg	Extraction in acetone or methanol GC/MS, sonication for 30 minutes at 60 degrees C	Neither of these chemicals is legally regulated in finished products at this time, but the German Federal Institute for Risk Assessment (BfR) claim that both can cause allergic reaction. Oeko-tex: 10 mg/kg	Potential breakdown products in EVA foam when using Dicumyl Peroxide as a cross-linking agent. May be found in Shoes/Shoe Soles	
98-86-2	Acetophenone					
617-94-7	2-Phenyl-2-Propanol					

Azo Dyes - restricted arylamines					PROPERTY LENDING CHEMICALS	
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	20 mg/kg for each arylamine	For all markets except China: For textile: EN 14362-1, -3 For leather: ISO 17234-1, -2 (method specified in REACH Annex XII, Appendix 10) Reporting limit: 5 mg/kg (per each of the arylamine breakdown products) Products for China market: China standard GB 18401: For Textile: GB/T 17592 China standard GB 20400: For Leather: GB/T 19942 China standard GB/ 23344: For p-AAB: Reporting limit: 5 mg/kg	EU Legal limit: 1000mg/kg for Navy Blue, 30 mg/kg per each of other arylamine breakdown products, in REACH, Annex XVII, entry 43 * Norway: Legal limit 30 mg/kg China: Legal limit: 20mg/kg Vietnam: Legal limit ≤ 30 g/kg Japan: Legal limit ≤ 30 mg/kg India: Legal limit 30 mg/kg Egypt: Legal limit 30 mg/kg	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 of textiles.	
101-14-4	4,4-Methylene-bis[2-chloro-aniline]					No. 67
101-77-9	4,4-Methylenedianiline					No. 1
101-80-4	4,4'-oxydianiline					No. 131
106-47-8	4-chloroaniline					
119-90-4	o-Dianisidine					
119-93-7	4,4'-bi-o-toluidine					
120-71-8	p-Cresidine					No. 134
137-17-7	2,4,5-trimethylaniline					
139-65-1	4,4'-thiodianiline					
60-09-3	4-Aminoazobenzene					No. 132
615-05-4	4-methoxy-m-phenylenediamine					
838-88-0	4,4-Methylenedi-o-toluidine					No. 130
87-62-7	2,6-xylidine					
90-04-0	o-Anisidine					No. 59
91-59-8	2-Naphthylamine					
91-94-1	3,3-Dichlorobenzidine					

Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
92-67-1	Biphenyl-4-ylamine	See previous page	See previous page	<p>Prop 65: Several arylamines are known to the State of California to cause cancer. Safe Harbor Limit: NSRL 0.001-110 µg/day. No information on settlements.</p> <p>* From 1. November 2020 these 4 AZO dyes will be restricted with a limit on 30mg/kg according to Annex XVII, entry 72</p> <p>** Banned mines that are included in GOTS ver. 5.0</p>	See previous page	
92-87-5	Benzidine					
95-53-4	o-Toluidine					
95-68-1	2,4-xylydine					
95-69-2	4-Chloro-o-toluidine					
95-80-7	4-methyl-m-					
97-56-3	o-Aminoazotoluene					
99-55-8	5-Nitro-o-toluidine					
95-79-4 **	2-Amino-4-Chlorotoluene					
3165-93-3 *	4-chloro-o-toluidinium chloride					
553-00-4 *	2-Naphthyl-ammoniumacetate					
39156-41-7 *	4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate					
21436-97-5 *	2,4,5-trimethylaniline hydrochloride					
106-50-3 **	1,4-Diaminobenzene				It is mainly used as a component of engineering polymers and composites. It is also an ingredient in hair dyes. PPD is a precursor to aramid plastics and fibers such as Kevlar. p-Phenylenediamine is also used as a vulcanization accelerator and as an antioxidant in rubber compounds.	
118685-33-9	Navy Blue (EC. No. 405-665-4)	1000 mg/kg	Navy Blue: EN ISO 16373	EU Legal limit: 1000 mg/kg for Navy Blue in REACH, Annex XVII, Entry 43	Navy blue colorants are regulated and prohibited from use for dyeing of textiles.	

Alkylphenols (AP), Alkylphenol ethoxylates (APEO) and its derivatives				PROCESS CHEMICALS		
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
Various, incl. 68987-90-6, 9036-19-5, 9002-93-1	(OPEO) Octylphenol Ethoxylates	Usage ban Shall not be used intendedly in any process Trace: 100 mg/kg for total NPEO/OPEO A total of all Aps and APEO's must not exceed: 100 mg/kg Trace: Not Detected for NP/OP	Textile: EN ISO 18254-1 Leather: EN ISO 18218-1 Plastics/Polymer: THF/ ACN Extraction, Analyzed by GCMS / LCMS Reporting limit: NPEO/OPEO: 50 mg/kg NP/OP: 10 mg/kg	EU Legal limit: 1000 mg/kg or 0.1% by weight for nonylphenol ethoxylate as a substance or constituent of preparations (closed systems exempted). NP is in REACH, Annex XVII, entry 46 NPEO is in REACH Annex XVII, entry 46a with restriction on textiles intended to be washed in water during its lifecycle with a legal limit of 100mg/kg, effective Feb 2021	APEOS are non-ionic surfactants including NPEOs, OPEOs, NP, and OP. NPEOs and OPEOs degrade into NP and OP, respectively. APEOs can be used as or found in: - Detergent - Scouring agents - Wetting agents - Softeners - Emulsifier/dispersing agents for dyes and prints - Impregnating agents - Degreasing agents for leather - Leather finishing - De-gumming for silk production - Dyes and pigment preparations - Polyester padding - Down/feather fillings	No. 94
Various, incl. 9016-45-9, 26027-38-3, 37205-87-1, 68412-54-4, 127087-87-0	(NPEO) Nonylphenol Ethoxylates					No. 144
Various, incl. 27193-28-8, 140-66-9, 1806-26-4, 85771-77-3	(OP) Octylphenol					No. 60
Various including 25154-52-3, 104-40-5, 84852-15-3, 11066-49-2	(NP) Nonylphenol					No. 93
Various	4-heptylphenol, branched and linear	Trace: 1000 mg/kg	THF/ ACN Extraction, Analyzed by GCMS / LCMS			No. 171 & 181
80-46-6	p-(1,1-dimethylpropyl) phenol	Trace: 1000 mg/kg				No. 173

Allergenic Disperse Dyes		PROPERTY LENDING CHEMICALS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	Usage Ban Trace: 50 mg/kg (3,3mg/L)	DIN 54231 (qualitative) EN ISO 16373 (extractable dyestuff) Reporting limit: 1 mg/l per substance	Germany, South Korea and practically globally due the fact that nearly all brands and retailers have these on their RSL's. South Korea: restriction limit 50 mg/kg (Equals 3,3mg/L under DIN 54231) * Disperse Dyes Banned in Germany according to: LFBG § 30 of Food and Commodities Act	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). Legislation in major markets around the world restricts the presence of some disperse dyes in finished products. The main sources of exposure to restricted disperse dyes identified for both consumers and workers are dermal absorption. The restricted disperse dyes are suspected of causing allergic reactions.	
2475-45-8 *	Disperse Blue 1					
2475-46-9 *	Disperse Blue 3					
3179-90-6	Disperse Blue 7					
3860-63-7	Disperse Blue 26					
12222-75-2 *	Disperse Blue 35					
12222-97-8	Disperse Blue 102					
12223-01-7 *	Disperse Blue 106					
61951-51-7 *	Disperse Blue 124					
23355-64-8	Disperse Brown 1					
2581-69-3	Disperse Orange 1					
730-40-5 *	Disperse Orange 3					
12223-33-5 *	Disperse Orange 37/59/76					
13301-61-6						
2872-52-8 *	Disperse Red 1					
2872-48-2	Disperse Red 11					
3179-89-3	Disperse Red 17					
119-15-3	Disperse Yellow 1					
2832-40-8 *	Disperse Yellow 3					
6373-73-5	Disperse Yellow 9					
12236-29-2	Disperse Yellow 39					
54824-37-2	Disperse Yellow 49					
6250-23-3	Disperse Yellow 23					
85136-74-9	Disperse Orange 149					

Bisphenols		PROCESS CHEMICAL				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	1 ppm	LC-MS, GC-MS Reporting limit: 1 ppm	Bisphenol A (BPA) is restricted from January 2020, REACH (Annex XVII, entry 66 in thermal paper, limit 0,02 % W/W. Prop 65: BPA is known to the State of California to cause birth defects or other reproductive harm. Safe Harbor Limit: MADL 3µg/day (dermal exposure from solid materials). Settlements agreed at 3ppm, 20 pm or zero limit for various products	Bisphenol A (BPA) is a precursor chemical used along with other chemicals to create some plastics and resins. It is commonly used to harden plastics. May be found in: <ul style="list-style-type: none"> - Polycarbonate bottles - Food and beverage cans - Thermal paper - Storage containers - Plastic sunglasses - Impact resistant safety equipment - Adhesives, coatings, trims - The production of epoxy resin - polycarbonate plastics - Flame retardants - PVC 	
80-05-7	BPA (4,4'-isopropylidenediphenol)					No. 170
6807-17-6	2,2-bis(4'-hydroxyphenyl)-4- methylpentane					No. 192

Carcinogenic Dyestuffs		PROPERTY LENDING CHEMICALS							
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC			
CAS No.	Substance	Usage Ban Trace: 50 mg/kg (3,3mg/L)	DIN 54231 (qualitative) EN ISO 16373 (extractable dyestuff) Reporting limit: 1 mg/l per substance	South Korea: restriction limit 50 mg/kg (Equals 3,3mg/L under DIN 54231) * Disperse Dyes Banned in Germany according to: LFBG § 30 of Food and Commodities Act ** From 1. November 2020 these dyes will be restricted with a limit of 50 mg/kg according to REACH, Annex XVII, entry 72,	Dying of textile and synthetic leather. All listed are known or suspected to be carcinogenic. 7 are on the SVHC list and some are banned in Germany.				
2475-45-8 * & **	Disperse Blue 1								
82-28-0	Disperse Orange 11								
6250-23-3	Disperse Yellow 23								
3761-53-3	Acid Red 26								
569-61-9 **	Basic Red 9								
632-99-5	Basic Violet 14								
1937-37-7	Direct Black 38								No. 148
2602-46-2	Direct Blue 6								
573-58-0	Direct Red 28								No. 147
16071-86-6	Direct Brown 95								
85136-74-9	Disperse Orange 149								
6786-83-0	Solvent Blue 4								No. 79
2580-56-5	Basic Blue 26								No. 77
548-62-9 **	Basic Violet 3								No. 76
101-61-1	Michler's base				No. 78				
561-41-1	4,4'-bis(dimethylamino)-4''- (methylamine)trityl alcohol				No. 74				

Diisocyanates		PROCESS & PROPERTY LENDING CHEMICALS & RELATED MANUFACTURING IMPURITIES				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
101-68-8	(MDI) Diphenylmethane diisocyanate	Free: 1 ppm Blocked: 50 ppm	Free: Solvent extraction analysis by HPLC.	Methylene diphenyl diisocyanate (MDI) and its isomers is restricted when used as a component of consumer products in REACH Annex XVII, Entry 56	Diisocyanates widely serve as monomers in polyurethane products for seals, adhesives, and coatings in the coatings industry. Many Diisocyanates are classified as skin and respiratory sensitizers and are thought to be the trigger for a high number of cases of occupational asthma reported across all EU Member States.	
822-06-0	(HDI) Hexamethylene diisocyanate	Free: 1 ppm Blocked: 100 ppm	Blocked: Solvent extraction by GC-MS with injector block temperature of 300 °C.			
4098-71-9	(IPDI) Isophorone diisocyanate	Free: 1 ppm Blocked: 100 ppm	If detected, confirmation test at 180°C is needed to avoid false positive detection of diisocyanate from polyurethane decomposition in injector block of GC/MS device.			
2778-42-9	(TMXDI) Tetramethylxylene diisocyanate	Free: 1 ppm Blocked: 15 ppm				
584-84-9	(TDI) Toluene diisocyanate	Free: 1 ppm Blocked: 50 ppm				

Flame Retardants		PROPERTY LENDING CHEMICALS				
Restricted Substance	Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE)						
CAS No.	Substance					
59536-65-1 (mix)	(PBBs) Polybrominated biphenyls	Usage Ban Trace: 1 mg/kg		Legal limit: 0.1% by weight	Flame retardants are chemicals added to products to meet established flammability standards by decreasing the ability of materials to ignite. They are typically used in a wide range of consumer products such as upholstered furniture, carpets and draperies, automotive interior, textiles and plastics, consumer electronics, and baby products.	
5436-43-1	Tetrabromodiphenyl ether (TetraBDE)	Usage Ban Trace: 5 mg/kg	EN 16377 for PBB (Plastics)	PBBs are in REACH, Annex XVII, entry 8		
32534-81-9 60348-60-9	(PentaBDE) Penta-bromodiphenyl ether			OctaBDE & DecaBDE are listed in REACH, Annex XVII, entry 45 & 67		
36355-01-8	Hexabromophenyl			Hexabromophenyl is regulated in REACH Regulation (EC) No 756/2010		
68631-49-2, 207122-15-4	Hexabromodiphenyl ether (HexaBDE)			EN ISO 17881-1 for brominated flame retardants in textiles		TetraBDE, HexaBDE, HeptaBDE are listed in POPs* and banned by Regulation (EC) No 2019/1021**
446255-22-7 207122-16-5	Heptabromodiphenyl ether (HeptaBDE)					
32536-52-0	(OctaBDE) Octa-bromodiphenyl ether					
1163-19-5	(DecaBDE) Decabromodiphenyl ether			Textile goods for private use are basically never flame retardant treated. The only case when textile goods are treated with flame retardant is if the end customer orders this property.		No. 85

Flame Retardants – Continued...		PROPERTY LENDING CHEMICALS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
Chlorinated paraffins						
CAS No.	Substance	Usage Ban Trace: 0.1 % by weight	EN ISO 18219 (leather) Reporting limit: 100 mg/kg	Legal limit: 0.1% by weight SCCP is listed in POPs* and banned by Regulation (EC) No 2019/-1021** Norway has a national legislation from 1 July 2012 with restrictions for Medium-chain (C14-C17) chloroparaffins of 0.1 % by weight in articles	Use in textile: Plasticizers and flame retardant in plastic material. Use in leather: Plasticizers in coated synthetic or fake leather. Fat liquoring agent in leather production. Use in accessories and packaging: Plasticizers and flame retardant in plastic material and rubber.	
85535-84-4	(SCCP) Short-chain chloroparaffins, (C10-C13)					No. 8
85535-85-9	(MCCP) Medium-chain chloroparaffins, (C14-C17)					
85535-86-0	(LCCP) Long-chain chloroparaffins (C18-)					

Flame Retardants – continued...		PROPERTY LENDING CHEMICALS				
Restricted Substance	Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
Others incl. Phosphate flame retardants						
CAS No.	Substance					
25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7, 134237-52-8	(HBCDD) Hexabromocyclo-dodecane	Usage Ban Trace: 5 mg/kg	EN ISO 17881- 1 for brominated flame retardants	HBCDD is listed in POPs* and banned by Regulation (EC) No 2019/1021 ** Legal limit: 0.01% by weight HBCDD and all major isomers are in REACH, Annex XIV	Flame retardant treated products, (i.e. upholstery and interior textiles), where fire protection is required. Also used in packaging flakes made from polystyrene (PS).	No. 6
78-30-8	Tri-o-cresyl phosphate		EN ISO 17881- 2 for phosphorous flame retardants			
126-72-7	(TRIS) Tris (2,3-dibromopropyl) phosphate			TRIS is in REACH, Annex XVII, entry 4 Canada: Imports of products treated with or containing this substance is prohibited in Canada (Canada Consumer Product Safety Act).		
5412-25-9	(BDBPP) Bis (2,3-dibromopropyl) phosphate					
115-96-8	(TCEP) Tris(2- chloroethyl)phosphate		EN ISO 17881- 2 for phosphorous flame retardants	Legal limit: 0.1% by weight	Flame retardant in coated textiles where fire protection is required and in plasticizers.	No. 26

Flame Retardants – continued...			PROPERTY LENDING CHEMICALS		
Restricted Substance	Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
Others					
CAS No.	Substance	Usage Ban Trace: 5 mg/kg	KOH or NaOH digestion followed by GC-MS headspace analysis for ethyleneimine	TEPA is in REACH, Annex XVII, entry 7	Flame retardant in coated textiles where fire protection is required.
545-55-1	(TEPA) Tris (1-aziridinyl)-phosphine oxide		EN ISO 17881- 2 for phosphorus flame retardants	Legal limit: 0.1% by weight	Mainly used as functional fluid. Plasticizer of vinylite (a copolymer of vinyl chloride and vinyl acetate), cellulosic resins and natural and synthetic rubber. Plasticizer and flame retardant of PVC and PU.
25155-23-1	(TXP) Trixylyl phosphate				No. 151
<p>*POPs are the Stockholm Convention on Persistent Organic Pollutants **Regulation (EC) No 2019/1021 (EU regulation implementing Stockholm Convention).</p>					

Formaldehyde		PROPERTY LENDING CHEMICAL				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
50-00-0	Formaldehyde	<p>Children < 3 yrs.: Not Detected</p> <p>Adults: Products with direct skin contact*: Scarfs or any ither item worn next to mouth and nose: 30mg/kg</p> <p>All other articles:75 mg/kg</p> <p>Adults: Products without direct skin contact**: 300 mg/kg</p>	<p>Textiles: ISO 14184-1 Leather: ISO 17226-1</p> <p>Reporting limit: 16 mg/ kg</p> <p>Wood & wood-based materials: EN 717-1</p>	<p>From 1. November 2020, Formaldehyde will have a restriction limit of 75 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72. During the transition period jackets, coats or upholstery will have a restriction on 300 mg/kg</p> <p>For National Legislation see table on next page: "Formaldehyde regulations worldwide"</p>	<p>Shrinkage-resistant treatment. Wrinkle-resistant treatment. Dirt-repellent treatment. Dye fixing agent. Preservative. Organic cross linkers are used in synthetic tanning of leather ("synthans") and may release formaldehyde.</p> <p>Due to its volatility, formaldehyde is "contagious". If a garment containing formaldehyde is placed on top of a garment without formaldehyde, the latter garment will be "infected". Fabric samples for testing must be packed in air dense plastic bags (polyethylene, PE, or polypropylene, PP).</p>	
<p>* Products for adults where any part of the product such as collar, cuff, body, or sleeves, has direct prolonged contact with the skin during normal use.</p> <p>** Products for adults where only a portion of the product, <u>occasionally</u> may have contact with the skin during normal use.</p>						

Formaldehyde regulations worldwide		
Country	Regulations/Requirements	Objection Limit / Limit
EU - REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH)	From 1. November 2020, formaldehyde will have a restriction limit of 75 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). During a transition period, jackets, coats or upholstery will have a restriction limit of 300 mg/kg. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.256.01.0001.01.ENG&toc=OJ:L:2018:256:TOC
Germany	Gefahrstoffverordnung (Hazardous Substances Ordinance) Annex III, No. 9, 26.10.1993	Textiles that normally come into contact with the skin and release more than 1500 mg/kg formaldehyde must bear the label: "Contains formaldehyde". Washing this garment is recommended prior to first time use in order to avoid irritation of the skin."
France	Official Gazette of the French Republic, Notification 97/0141/F	The regulations apply to products that are intended to come into contact with human skin, including: textiles, leather, shoes etc. Textiles for babies: 20 mg/kg. Textiles in direct skin contact: 100 mg/kg. Textiles not in direct skin contact: 400 mg/kg.
Netherlands	The Dutch (Commodities Act) Regulations on Formaldehyde in Textiles (July 2000)	Textiles in direct skin contact must be labelled: "Wash before first use" if they contain more than 120 mg/kg formaldehyde and the product must not contain more than 120 mg/kg formaldehyde after wash
Austria	Formaldehydverordnung, BGBL Nr. 194/1990	Textiles that contains 1500 mg/kg or above must be labelled.
Finland	Decree on Maximum Amounts of Formaldehyde in Certain Textiles Products (Decree 210/1988)	Textiles for babies under 2 years: 30 mg/kg. Textiles in direct skin contact: 100 mg/kg. Textiles not in direct skin contact: 300 mg/kg.
Norway	Regulations Governing the Use of several Chemicals in Textiles (April 1999)	Textiles for babies under 2 years: 30 mg/kg. Textiles in direct skin contact: 100 mg/kg. Textiles not in direct skin contact: 300 mg/kg.
China	Limits of Formaldehyde Content in Textiles: GB18401, Leather: GB/T 19941	Textiles for infants and babies: ≤20 mg/kg. Textiles in direct skin contact: ≤75 mg/kg. Textiles not in direct skin contact: ≤300 mg/kg.
Japan	Japanese Law 112 Textiles: JIS L1041	Textiles for infants: Not detectable. Textiles in direct skin contact: 75 ppm.
Vietnam	Circular no 23/2016/TT-BCT	Textiles for babies under 36 months: 30 mg/kg. Textiles in direct skin contact: 75 mg/kg. Textiles not in direct skin contact: 300 mg/kg
USA	Prop 65	Formaldehyde (gas) is known to the State of California to cause cancer. Safe Harbor Limit: NSRL 40 µg/day. No information on settlements.

Metal Restrictions – Extractable & Total content			PROPERTY LENDING CHEMICAL			
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
7440-36-0	Antimony (Sb)	Extractable: 30 mg/kg			Found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.	
7440-38-2	Arsenic (As) and its compounds	Extractable: 30 mg/kg Total: 100 mg/kg	Extractable: Textiles: EN 16711-2 Leather: EN ISO 17072-1 Total: Textiles: EN 16711-1 Leather: EN ISO 17072-2	In REACH, Annex XVII, entry 19. From 1. November 2020, arsenic and its compounds will have a restriction limit of 1 mg/kg (extractable content) in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 *	Arsenic and its compounds can be found in glass, in metal alloy and be used in preservatives, pesticides and defoliants for cotton, synthetic fibers, paints, inks, trims, and plastics.	No. 5 No. 13 No. 14 No. 63 No. 64
7440-39-3	Barium (Ba)	Extractable: 1000 mg/kg			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.	

Metal Restrictions – Extractable & Total content - continued				PROPERTY LENDING CHEMICAL		
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
7440-43-9	Cadmium (Cd) and its compounds	Extractable: 0,1 mg/kg Total: 100 mg/kg	Extractable: Textiles: EN 16711-2 Leather: EN ISO 17072-1 Total: Textiles: EN 16711-1 Leather: EN ISO 17072-2	In REACH, Annex XVII, entry 23. From 1. November 2020, cadmium, and its compounds will have a restriction limit of 1 mg/kg (extractable content) in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 * Cadmium and its compounds are listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6	Cadmium compounds are used as pigments (especially in red, orange, yellow and green); as a stabilizer for PVC; and in fertilizers, biocides, and paints.	No. 141 No. 142 No. 145 No. 152 No. 159 No. 160 No. 178 No. 179
7440-47-3	Chromium (Cr)	Extractable for textiles: 2 mg/kg Extractable for leather (natural and coated) 200 mg/kg			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.	

Metal Restrictions – Extractable & Total content - continued			PROPERTY LENDING CHEMICAL			
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
18540-29-9	Chromium VI (Cr ⁺⁶)	Extractable for textiles: 0,5 mg/kg Extractable for leather (natural and coated): 3 mg/kg	Textiles: EN 16711-2 with EN ISO 17075-1 if Cr is detected Leather: EN ISO 17075-1: and EN ISO 17075-2 for confirmation if the extract causes interference Conditions for leather aging: 24 hours, 80°C, maximum 5% relative humidity, no ventilation	In REACH, Annex XVII. entry 47. From 1. November 2020, chromium VI compounds will have a restriction limit of 1 mg/kg (extractable Cr VI content) in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 * Chromium VI compounds are listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6	Though typically associated with leather tanning, Chromium VI also may be used in the dyeing of wool after the chroming process.	
7440-48-4	Cobalt (Co)	Extractable: Adult: 4 mg/kg Children & Babies: 1 mg/kg			Cobalt and its compounds can be used in alloys, pigments, dyestuff and the production of plastic buttons.	
7440-50-8	Copper (Cu)	Extractable: Adult: 50 mg/kg Children & Babies: 25 mg/kg	Textiles: EN 16711-2 Leather: EN ISO 17072-1		Copper and its compounds can be found in alloys and pigments, and in textiles as an antimicrobial agent.	

Metal Restrictions – Extractable & Total content - continued		PROPERTY LENDING CHEMICAL				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
7439-92-1	Lead (Pb)	<p>Extractable: Adult & Children: 1 mg/kg Babies: 0,2 mg/kg</p> <p>Total: 90 mg/kg</p>	<p>Extractable: Textiles: EN 16711-2 Leather: EN ISO 17072-1</p> <p>Total: Textiles: EN 16711-1 Leather: EN ISO 17072-2</p> <p>Metal: CPSC-CH-E1001-08.3</p> <p>Lead in paint and surface coating:</p> <p>CPSIA Section 101 16 CFR 1303</p>	<p>In REACH, Annex XVII. entry 63. Lead and its compounds are restricted in jewelry articles and hair accessories within EU with a legal limit: 500 mg/kg (0.05%). Lead and its compounds are restricted in articles that may be placed in the mouth by children with the legal limit 500 mg/kg</p> <p>Lead is restricted in Denmark. Danish legal limits: 100 mg/kg. (<i>Bekendgørelse nr. 856 af 5. September 2009</i>)</p> <p>From 1. November 2020, lead, and its compounds will have a restriction limit of 1 mg/kg (extractable content) in textiles according to REACH, Annex XVII, entry 72 *</p> <p>Lead and its compounds are listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6</p>	<p>Lead salts are additives in plastics as stabilizers to increase the service of life of the material. May be used in paint and in coloured plastic material. Metallic surface coating of buttons and accessories. For recycled packaging material lead may have had a different original use. Lead metal can also be used to increase ductility of other metals.</p>	<p>No. 186</p> <p>X**</p>

Metal Restrictions – Extractable & Total content - continued		PROPERTY LENDING CHEMICAL				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
7439-97-6	Mercury (Hg)	Extractable: 0,02 mg/kg Total: 0,5 mg/kg	Extractable: Textiles: EN 16711-2 Leather: EN ISO 17072-1 Total: Textiles, plastics & metal: EN 16711-1 Leather: EN ISO 17072-2	In REACH, Annex XVII. entry 18 & 18A. Products containing mercury may not be placed on the Swedish market Norway prohibits the manufacture, import, export, and sale of articles that contain mercury or mercury compounds (0.001% (10 mg/kg) Denmark prohibits the import, export and sale of articles and part of articles that contain mercury or mercury compounds (0.01% (100 mg/kg) Mercury is under restriction globally through the Minamata Convention	Mercury compounds can be present in pesticides and as contaminants in caustic soda (NaOH). They may also be used in paints. Phenylmercury *** compound is used as catalysts in the production of polyurethane coatings, adhesives, sealants, and elastomers. For recycled packaging mercury may have had a different original use as e.g. pesticide in woods.	
<p>* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.256.01.0001.01.ENG&toc=OJ:L:2018:256:TOC</p> <p>** 30 Lead compounds are in the SVHC Candidate list of REACH, Lead is no. 186 on the list added 27-06-2018</p> <p>*** 5 Phenylmercury compounds are restricted in REACH, Annex XVII, entry 62</p>						

Metal Restrictions – Extractable & Total content - continued				PROPERTY LENDING CHEMICAL		
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
7440-02-0	Nickel (Ni)	Extractable: Textile (natural & synthetic) & artificial leather: 4 mg/kg Leather (natural & coated): 1 mg/kg Nickel Release (metal parts): Prolonged skin contact: 0.5 µg/cm ² /week Pierced part: 0.2 µg/cm ² /week	Extractable: Textiles: EN 16711-2 Leather: EN ISO 17072-1 Nickel Release: EN 12472:2005+ A1:2009 and EN 1811:2015* Spectacle & Sunglasses with metal frame: EN 16128	In REACH, Annex XVII. entry 27	Nickel is one of the most common substances that cause contact dermatitis. Highly allergenic (strong sensitizer). Nickel is often used to improve alloys used in clothing accessories such as zippers, buttons, and rivets. They can also occur as impurities in pigments and alloys.	
7782-49-2	Selenium (Se)	Extractable: 500 mg/kg	Extractable: Textiles: EN 16711-2 Leather: EN ISO 17072-1		May be found in synthetic fibres, paints, inks, plastics, and metal trims.	

* Metal parts with surface coating, perform abrasion of the coated surface according to EN 12472:2005 + A1:2009 before Nickel release according to EN 1811:2011 + A1:2015

Monomers				CHEMICAL PRECURSORS		
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
79-06-1	Acrylamide	0,1 mg/kg	Validated method, Headspace GC/MS identification		Intermediate in polyacrylamide production.	No. 28
100-42-5	Styrene	500mg/kg			Styrene is a precursor for polymerization and may be present in various Styrene copolymers like plastic buttons.	
75-01-4	Vinyl chloride	1 mg/kg	EN ISO 6401		Vinyl Chloride is a precursor for polymerization and may be present in various PVC materials like prints, coatings, flip flops, and synthetic leather.	

N-Nitrosamines		PROCESS CHEMICAL				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
62-75-9	N-Nitrosodimethylamine (NDMA)	Usage Ban Trace: 0,5 mg/kg for each	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. prEN 19577:2017	Regulation (EC) No 850/2004 (EU regulation implementing Stockholm Convention) ** Regulated in China: GB25038-2010 "Rubber shoes healthy and safety specification and GB25036- 2010 "Children's Canvas Rubber footwear"	Can be formed as by- product in the production of rubber. Most common in Shoe materials (Rubber)	
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-methylaniline (NMPHA)					
612-64-6	N-nitroso-N-ethylaniline (NEPhA)					

Phthalates		PROPERTY LENDING CHEMICALS					
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
CAS No.	Substance	<p>Should not be present in products</p> <p>The sum of esters of ortho-phthalic acid must not exceed: 0.1 % by weight</p>	<p>EN/ISO 14389, GC-MS, LC-MS</p> <p>USA: CPSC-HC-C1001-09.3</p> <p>Reporting limit: 50 mg/kg for each phthalate</p>	<p>EU: 0.1% by weight of the plasticized material in toys and childcare articles which can be placed in the mouth</p> <p>BBP, DBP, DEHP, DINP, DIDP and DNOP are listed in REACH, Annex XVII, entry 51 & 52</p> <p>BBP, DBP, DEHP and DIBP are listed in REACH, Annex XIV.</p> <p>All phthalates in toys and childcare Articles for children age 0-3 years are restricted (0,05%) in Denmark (BEK nr 855)</p> <p>* From 1. November 2020 these Phthalates will be restricted with a limit of 1000 mg/kg in textiles, REACH, Annex XVII, entry 72</p>	<p>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.</p> <p>Phthalates can be found in: Flexible plastic components (e.g., PVC) Print pastes Adhesives Plastic buttons Plastic sleeving Polymeric coatings</p> <p>The listed Phthalates are those most commonly used and regulated across industry sectors.</p>		
85-68-7	(BBP) Butyl benzyl phthalate						No. 3
84-74-2	(DBP) Dibutyl phthalate						No. 15
117-81-7	(DEHP) Di(ethylhexyl) phthalate						No. 11
84-66-2	(DEP) Diethyl phthalate						
68515-42-4	(DHNUP) 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters						No. 47
84-69-5	(DIBP) Di-iso-butyl phthalate						No. 22
26761-40-0 68515-49-1	(DIDP) Di-isodecyl phthalate						
71888-89-6 *	(DIHP) 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich						No. 51
28553-12-0 68515-48-0	(DINP) Di-isononyl phthalate						
605-50-5 *	(DIPP) Di-isopentyl phthalate		No. 109				
117-82-8 *	(DMEP) Di-(2-methoxyethyl) phthalate		No. 55				

Continue on next page

Phthalates - Continued		PROPERTY LENDING CHEMICALS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	See above	See Above	See above	See above	
131-11-3	(DMP) Dimethyl phthalate					
84-75-3 *	(DnHP) Di-n-hexyl phthalate					No. 146
117-84-0	(DNOP) Di-n-octyl phthalate					
131-18-0 *	(DPP) Di-n-pentyl phthalate					No. 143
84777-06-0	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear					No. 108
776297-69-9	(iPnPP) N-pentyl-isopentyl-phthalate					No. 110
68515-50-4	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear					No. 153
68515-51-5	1,2-Benzenedicarboxylic acid, di-C6-10-alkyl ester with $\geq 0,3\%$ of dihexyl phthalate (84-75-3)					No. 162
68648-93-1	1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diester with $\geq 0,3\%$ of dihexyl phthalate (84-75-3)					No. 162
84-61-7	(DCHP) Dicyclohexyl phthalate	No. 183				
Various	All other esters of ortho-phthalic acid					

* From 1. November 2020 these Phthalates will have restriction limit of 1000 mg/kg in according to REACH, Annex XVII, entry 72, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.256.01.0001.01.ENG&toc=OJ:L:2018:256:TOC

Perfluorinated and Polyfluorinated Chemicals (PFCs)		PROPERTY LENDING CHEMICALS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	Usage Ban Trace: 1 µg/m ² each	CEN/TS 15968 Reporting limit: 0,1 µg/m ²	<p>PFOS is listed in POPs and banned by Regulation (EU) 2019/1021</p> <p>PFOA Cas. 335-67-1 is listed as SVHC and by 14/6/2017 In REACH, Annex XVII, entry 68.</p> <p>From 4 July 2020, PFOA and its salts are restricted in articles and mixtures in a concentration equal to or above 25 ppb of PFOA including its salts, or 1000 ppb of one or a combination of PFOA-related substances. From 4 July 2023 the restriction applies to textiles for the protection of workers from risks to their health and safety (PPE).</p> <p>Norway has a national ban for PFOA, its salts and esters in consumer products. The enforcement date is 1 June 2014 and applies to both solid and liquid products, including textiles.</p> <p>As of 2019, PFC's are not allowed to be used in any Marimekko products, their components or packaging.</p>	<p>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).</p> <p>Where oil repellent properties are not essential and just water repellence is required, non-fluorinated chemistries (C0) such as waxes and paraffins (but not silicones) are allowed. All fluorinated chemistries are prohibited in Marimekko products.</p>	No. 139
1763-23-1 & Various salts & esters	(PFOS) Perfluorooctane sulphonate and PFOS metallic salt, halogenide, amide and other derivatives					

Polycyclic Aromatic Hydrocarbons (PAH's)			PROPERTY LENDING CHEMICALS			
Restricted Substance	Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
PAH – Impurities						
CAS No.	Substance					
50-32-8*	(BaP) Benzo[a]pyrene	Sum of all* PAH's: 1 mg/kg	Rubber: ISO 2146 (NMR) Textile & Leather AfPS GS 2019-01 PAK Footwear: ISO/TS 16190 Reporting limit: 0.2 mg/kg	BaP, BeP, BaA, CHR, BbFA, BjFA, BkFA, DBAhA, in REACH, Annex XVII, entry 50, regulated for car tires and consumer products such as clothing, footwear, gloves, sportswear, headbands, watch-straps and wristbands*. From 1. November 2020 these will have a restriction limit of 1 mg/kg for textiles according to REACH, Annex XVII, entry 72 Toys & childcare articles: 0,5 mg/kg of any of the listed PAHs	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.	
192-97-2*	(BeP) Benzo[e]pyrene					No. 169
56-55-3*	(BaA) Benzo[a]anthracene					No. 176
218-01-9*	(CHR) Chrysene					No. 175
205-99-2*	(BbFA) Benzo[b]fluoranthene					
205-82-3*	(BjFA) Benzo[j]fluoranthene					
207-08-9*	(BkFA) Benzo[k]fluoranthene					
53-70-3*	(DBAhA) Dibenzo[a,h]anthracene					
83-32-9	Acenaphthene	Direct & Prolonged Skin contact* Sum of all PAH's: 10 mg/kg BaP: < 1 mg/kg		They also may be formed from thermal decomposition of recycled materials during reprocessing		
208-96-8	Acenaphthylene					
120-12-7	Anthracene				No. 4	
191-24-2	Benzo[ghi]perylene				No. 191	
206-44-0	Fluoranthene					
86-73-7	Fluorene					
193-39-5	Indeno[1,2,3-cd]pyrene					
91-20-3***	Naphthalene					
85-01-8	Phenanthrene	No Direct Skin contact** Sum of all PAH's: 200 mg/kg BaP < 20 mg/ kg				
129-00-0	Pyrene				On the way	
*This restriction should apply to those parts of articles that come into direct and prolonged contact with the skin or the oral cavity under normal conditions of use.						
**This restriction should apply to articles or parts which are only in short or infrequent contact with the skin or oral cavity under normal conditions of use.						
*** Naphthalene alone should not be considered as PAH but as a VOC with the limit of 200 mg/kg						

Polycyclic Aromatic Hydrocarbons (PAH's) - continued			PROPERTY LENDING CHEMICALS			
Restricted Substance	Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
PAH – Oil Mixtures						
CAS No.	Substance	Sum of all PAH's: 50 mg/kg	Solvent extraction / GC-MS or HPLC-DAD Reporting limit: 0.1 mg/kg	Anthracene Oil Cas No. 90640-80-5 is restricted in REACH, Annex XVII, Entry 31 (Wood)	These Anthracene oils consist of PAH. It is mainly used as an intermediate to produce pure Anthracene which is used to produce dyes. Also used in carbon black, pharmaceuticals, and wood preservative, waterproof membranes for roofing, asphalt, and industrial viscosity modifiers.	
90640-80-5	Anthracene oil					No. 17
91995-17-4	Anthracene oil, anthracene paste, distn. Lights					No. 18
91995-15-2	Anthracene oil, anthracene paste, anthracene fractions					No. 19
90640-82-7	Anthracene oil, anthracene- low					No. 20
90640-81-6	Anthracene oil, anthracene paste					No. 21

Polyvinyl Chloride (PVC)					POLYMER	
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
9002-85-1	Polyvinyl Chloride (PVC)	Usage Ban	Beilstein test for screening. If positive, confirmation by FTIR. Negative < detection limit	There are no laws restricting the use of PVC in soft goods, footwear, apparel, or accessories but NGOs such as Greenpeace or the Center for Health, Environment and Justice have been campaigning for the reduction or ban of PVC products for several years. As of 2019, PVC is not allowed to be used in any Marimekko products, their components or packaging.	PVC can be found in plastic items and trim in apparel and footwear (soles, badges, zipper pullers, etc.) as well as in prints, coatings for rainwear and in synthetic leather.	

Chlorinated organic carriers (COC)		PROCESS CHEMICALS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
Chlorinated Benzenes		Usage Ban Trace: 1 mg/kg	EN 17137 (textile) Solvent Extraction / GC-MS Reporting limit: 0.1 mg/kg	Pentachlorobenzene, Hexachlorobenzene are listed in POPs* and banned by Regulation (EU) 2019/1021**. From 1. November 2020, α , α , α , 4-tetrachlorotoluene (Cas 5216-25-1), α , α , α -trichlorotoluene (Cas 98-07-7), α -chlorotoluene (Cas 100-44-7) will have a restriction limit of 1 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 ***	Within the apparel and footwear supply chains, COC are found in textile applications. COC may be used as carriers during the dyeing process of synthetic fibres, especially polyester and polyester blends. COC are also used as intermediates in the synthesis of other chemicals as well as solvents for dyestuffs and other chemical formulations with high melting points. Therefore, COC may be present as impurities as well.	
CAS No.	Substance					
108-90-7	Monochlorobenzene					
Various	Dichlorobenzenes, all isomers					
Various	Trichlorobenzenes, all isomers					
Various	Tetrachlorobenzenes, all isomers					
608-93-5	Pentachlorobenzene					
118-74-1	Hexachlorobenzene					
Chlorinated Toluene		Usage Ban Trace: 1 mg/kg	Reporting limit: 0.1 mg/kg	From 1. November 2020, α , α , α , 4-tetrachlorotoluene (Cas 5216-25-1), α , α , α -trichlorotoluene (Cas 98-07-7), α -chlorotoluene (Cas 100-44-7) will have a restriction limit of 1 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 ***	Within the apparel and footwear supply chains, COC are found in textile applications. COC may be used as carriers during the dyeing process of synthetic fibres, especially polyester and polyester blends. COC are also used as intermediates in the synthesis of other chemicals as well as solvents for dyestuffs and other chemical formulations with high melting points. Therefore, COC may be present as impurities as well.	
CAS No.	Substance					
Various	Monochlorotoluenes					
Various	Dichlorotoluenes					
Various	Trichlorotoluenes					
Various	Tetrachlorotoluenes					
877-11-2	Pentachlorotoluene					
<p>* POPs are the Stockholm Convention on Persistent Organic Pollutants</p> <p>** Regulation (EU) 2019/1021 (EU regulation implementing Stockholm Convention)</p> <p>*** https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.256.01.0001.01.ENG&toc=OJ:L:2018:256:TOC</p>						

Volatile organic compounds (VOC's) & Solvents				PROCESS CHEMICALS			
Restricted Substance		Marimekko Limit mg/kg	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
Non-Chlorinated organic carrier		200	Validated method, extraction, or headspace GC/MS identification				
CAS No.	Substance						
91-20-3	Naphthalene						
Non-Halogenated aromatic solvents							
CAS No.	Substance	Usage Ban Trace: 5	Validated method, extraction, or headspace GC/MS identification	In REACH, Annex XVII, entry 5 From 1. November 2020, benzene (CAS-RN 71-43-2) will have a restriction limit of 5 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 *	Within the apparel and footwear supply chains, VOCs are widely used in chemical preparations. Some VOCs are used in adhesives, fabric and leather coatings, screen print inks, and synthetic leather. VOCs may be found as impurities in polystyrene-based resins used in the production of plastic trims. In addition, VOCs may be used in processes such as dry cleaning, as well as finishing and degreasing or cleaning operations		
71-43-2 *	Benzene						
100-41-4	Ethylbenzene					100	
108-88-3	Toluene					1000	In REACH, Annex XVII, entry 48
Continue next page							

Volatile organic compounds (VOC's) & Solvents			PROCESS CHEMICALS			
Restricted Substance		Marimekko Limit mg/kg	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
Non-Halogenated aliphatic solvents						
CAS No.	Substance				Within the apparel and footwear supply chains, VOCs are widely used in chemical preparations. Some VOCs are used in adhesives, fabric and leather coatings, screen print inks, and synthetic leather. VOCs may be found as impurities in polystyrene-based resins used in the production of plastic trims. In addition, VOCs may be used in processes such as dry cleaning, as well as finishing and degreasing or cleaning operations	
75-15-0	Carbon disulphide	10	Validated method, extraction, or headspace GC/MS identification			
110-80-5	2-Ethoxyethanol	80		No. 42		
111-15-9	2-Ethoxyethanol acetate	80		No. 45		
109-86-4	2-Methoxyethanol	80		No. 41		
110-49-6	2-Methoxyethanolacetate	300				
1589-47-5	2-Methoxypropanol	1000				
70657-70-4	2-Methoxypropanol acetate	1000				
122-99-6	2-Phenoxyethanol	400				
111-76-2	2-Butoxyethanol	1000				
75-12-7	Formamide	1000				Formamide is used to give more volume to flipflops (EVA)and neoprene
127-19-5 *	(N,N-DMAC) N,N-dimethylacetamide	1000	No standardized test method available for textiles Validated method, extraction or headspace GC/MS identification	From 1. November 2020, DMAC will have a restriction limit of 3000 mg/kg in textiles (CMR fast track) according REACH, Annex XVII, entry 72 *	Used as solvent and in industrial coatings, polyimide films, paint strippers and ink removers. Polyamide precursor. SBR (styrene-butadiene) latex production.	No. 66

Continue next page

Volatile organic compounds (VOC's) & Solvents				PROCESS CHEMICALS		
872-50-4 *	(NMP) N-Methylpyrrolidone	100	<p>No standardized test method available for textiles</p> <p>Validated method, extraction or headspace GC/MS identification</p>	<p>From 1. November 2020, NMP will have a restriction limit of 3000 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 *</p>	<p>Good solvency properties for polymers. Surface treatment of textiles (synthetic leather), resins and metal coated plastics or as a paint stripper. Intermediates for textile auxiliaries, plasticizers, stabilizers and specialty inks.</p>	No. 49
68-12-2 *	(N,N-DMF) N,N-Dimethylformamide (DMFa)	1000	<p>CEN ISO/TS 16189 (footwear & footwear components)</p> <p>No standardized test method available for textiles</p> <p>Validated method, extraction, or headspace GC/MS identification</p> <p>EN 16778 (protective gloves)</p>	<p>From 1. November 2020, DMFa will have a restriction limit of 3000 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 *</p> <p>Restricted in polyurethane-coated work gloves work gloves in Germany the maximum DMFa content must be less than 10 mg/kg glove material (TRGS 401).</p>	<p>Used as solvent and in production of leather imitation (PU). Water-based PU does not contain DMFa and is therefore preferable</p> <p>An intermediate for paper finishing. It may have a faint amine odour in finished products</p>	No. 96
Continue next page						

Volatile organic compounds (VOC's) & Solvents			PROCESS CHEMICALS					
Restricted Substance		Marimekko Limit mg/kg	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC		
Halogenated aliphatic solvents			Validated method, extraction, or headspace GC/MS identification					
CAS No.	Substance							
127-18-4	(PERC) Tetrachloroethylene	50						No. 29
79-01-6	(TCE) Trichloroethylene	50						No. 50
96-18-4	1,2,3-trichloropropane	50						
76-01-7	Pentachloroethane	100						
56-23-5	(Carbon Tetrachloride) Tetrachloromethane	10						
630-20-6	1,1,1,2-Tetrachloroethane	10						
79-34-5	1,1,2,2-Tetrachloroethane	100						
67-66-3	(Chloroform) Trichloromethane	100						
79-00-5	1,1,2-Trichloroethane	100						
75-35-4	1,1-Dichloroethylene	100						
71-55-6	1,1,1-Trichloroethane	100						
75-09-2	Methylene chloride	100						
*From 1. November 2020 these marked substances will be regulated according to REACH, Annex XVII, entry 72, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.256.01.0001.01.ENG&toc=OJ:L:2018:256:TOC								

Quinoline		PROCESS CHEMICALS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	50 mg/kg	No standardized test method available for textiles Validated method, extraction, or headspace GC/MS identification	From 1. November 2020, quinoline will have a restriction limit of 50 mg/kg in textiles (CMR fast track) according to REACH, Annex XVII, entry 72 *	Quinoline is used mainly as an intermediate in the manufacture of other products. Quinoline is also used as a catalyst, a corrosion inhibitor, in metallurgical processes, in the manufacture of dyes, in polymers, and as a solvent for resins and terpenes.	
91-22-5 *	Quinoline					
* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.256.01.0001.01.ENG&toc=OJ:L:2018:256:TOC						

UV Stabilisers - Benzotriazole		PROPERTY LENDING CHEMICAL				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	≤ 1000mg/kg	No standardised test method available. GC-MS, LC-MS, GC-ECD		UV-stabilizer for plastics, polyurethanes and rubber and constituent in formulations used for coating of surfaces, e.g. cars or special industrial wood coatings. Also used in dishwasher detergents, dry cleaning equipment, and de-icing/anti-icing fluids	
3846-71-7	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)					
3864-99-1	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)					
25973-55-1	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)					
36437-37-3	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)					

MISCELLANEOUS

pH		MISCELLEANEOUS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
	pH*	Textiles: 4.0 – 8.5 Leather: 3.5 – 7.0	Textiles: ISO 3071 Leather: ISO 4045 pH meter accuracy: 0.2 pH units		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. Marimekko recommends the limits cited to comply with all global regulations for all products.	
*A pH higher than 10 or lower than 3 can cause skin irritation. The pH value in textiles can easily be corrected by washing.						

BIOCIDAL AGENTS

Organotin Compounds		BIOCIDAL AGENTS					
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC	
CAS No.	Substance	2 mg /kg per substance*	CEN ISO/TS 16179 (footwear) No standardized test method for textile available: Ethanol extraction, derivatization and analysis by GC-MS or LC-MS. Reporting limit: 0.02 mg/kg	Organostannic compounds are listed in REACH, Annex XVII, entry 20. TBTO, Tributyltin oxide and DBT DC, Dibutyltin dichloride is on the REACH, SVHC list.	In textiles and apparel, organotin are associated with pesticides, industrial biocides, plastics, rubber, inks, paints, metallic glitter, polyurethane products, and heat transfer material. Also used in heat transfers, silicon tapes and footwear		
Various	Mono-, Di-, Tri-butyltin derivates						No. 2 No. 97
Various	Mono-, Di-, Tri-methyltin derivates						
Various	Mono-, Di-, Tri-phenyltin derivates						
Various	Mono-, Di-, Tri-octyltin derivates						No. 158
Various	Tricyohexyltin (TCyHT)						
Various	Tri-n-propyltin (TPT)						

*Including but not limited to: (DBT) Dibutyltin, (TBT)** Tributyltin, (TBTO) Tributyltin oxide, (DMT) Dimethyltin, (TMT) Trimethyltin, (TPhT)** Triphenyltin, (DOT) Dioctyltin.
 ** Oeko-Tex & Japan have a limit of 1ppm for TBT & TPhT

Phenols (Chlorinated Phenols)		BIOCIDAL AGENT				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
87-86-5	(PCP) Pentachlorophenol, its salts, and compounds	Usage Ban Trace: 0.5 mg/kg	Textile / Leather: LFGB § 64 BVL B82.02.8 Leather: ISO 17070 Wood: CEN/TR 14823	Legal limit: 0.1% by weight. PCP is listed in Annex XVII, entry 22, REACH.	Chlorophenols are polychlorinated compounds used as preservatives or pesticides. Pentachlorophenol (PCP) and Tetrachlorophenol (TeCP) are sometimes used to prevent mold and kill insects when growing cotton and when storing or transporting fabrics. PCP and TeCP can also be used as preservatives in print pastes.	
25167-83-3	(TeCP) Tetrachlorophenol, its salts and compounds			PCP is banned in Norway and Germany in textiles and leather. Legal limit: 5 mg/kg		
4901-51-3 58-90-2 935-95-5	2,3,4,5 TetraCP 2,3,4,6 TetraCP 2,3,5,6 TetraCP			PCP is listed in the Rotterdam convention		
88-06-2 933-75-5 933-78-8 95-95-4 15950-66-0 609-19-8	(TriCP) Trichlorophenols 2,4,6 TriCP 2,3,6 TriCP 2,3,5 TriCP 2,4,5 TriCP 2,3,4 TriCP 3,4,5 TriCP	Adult: Sum 2,0 mg/kg				
90-43-7	(OPP) o-Phenylphenol	Textile/Synthetic leather: 100 mg/kg Leather: 750 mg/kg	Textile: LFGB § 64 BVL B82.02.8 Leather: ISO 13365	Biocide directive 98/8/EC: Under revision for PT9 (textile, leather, polymer)		

Other Biocides		BIOCIDAL AGENTS				
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
Cu-HDO		Usage ban	ICP-AES	Cu-HDO is banned within PT9 (product type 9) that includes textiles, polymers, and leather, according to the Biocidal Product Regulation (EU 528/2012)	Fungicide mainly as wood preservatives but may occur in fungicidal coating of textile-polymeric materials.	
CAS No.	Substance					
312600-89-8	Cu-HDO (Bis-(N-cyclohexyldiazoniumdioxy)-copper)					
Dimethyl Fumerate (DMFu)		Usage ban	ISO/TS 161186	In REACH, Annex XVII, entry 61	DMFu is an anti-mold agent used in sachets in packaging to prevent the buildup of mold, especially during shipping.	
CAS No.	Substance					
624-49-7	Dimethyl Fumerate (DMFu)					
Permethrin		Not detected Trace: 0,1 mg/kg	GC-MS, LC-MS	Permethrin is on the list of temporarily permitted existing biocides within PT9 (product type 9) that includes textiles, polymers, and leather, according to the Biocidal Products Directive (98/8/EC)	Permethrin is a biocide in textiles. It is also used for home pest control, forestry, and in public health programs, including head lice control.	
CAS No.	Substance					
52645-53-1	Permethrin					
Polyhexamethylene biguanide (PHMB)		Usage ban	No standardized test method available	PHMB is banned within PT9 (product type 9) that includes textiles, polymers, and leather, according to the Biocidal Product Regulation (EU 528/2012)	Biocide, bactericide in textiles.	
CAS No.	Substance					
27083-27-8 32289-58-2	Polyhexamethylene biguanide (PHMB)					

Silver and its compounds		Usage ban	ICP-MS, ICP-OES or AAS	Silver and some silver compounds are on the list of temporarily permitted existing biocides within PT9 (product type 9) that includes textiles, polymers, and leather, according to the Biocidal Products Directive (98/8/EC)	Silver particle complexes in Nano size (< 100nm) are antibiotic additives in plastics and fibres.	
CAS No.	Substance					
Not defined	Silver and it's compounds in Nano size					
Tributyltin compounds		Usage ban	No standardized method available for textiles GC-MS	All tri-substituted organotannic compounds such as TBT are restricted in all articles in REACH, Annex XVII, entry 20 Seven TBT compounds are also included in the Rotterdam convention	To counteract noxious odors in clothes and shoes. Preservative, fungicide, and antifouling agent.	No. 2 No. 97 No. 158
CAS No.	Substance					
Various	See organotin for detailed info					
Triclosan		Usage ban	GC-MS, LC-M	Triclosan is banned within PT9 (product type 9) that includes textiles, polymers, and leather, according to the Biocidal Product Regulation 528/2012)	Anti-bacterial agent in clothes and other commodities.	
CAS No.	Substance					
3380-34-5	Triclosan					

SUBSTANCES WHICH ARE NOT COMMONLY FOUND IN MARIMEKKO PRODUCTS

Fluorinated Greenhouse gases						
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS	Substance					
Various	See Regulation (EC) No 842/2006 and (EU) No 517/2014 for complete list	Usage Ban	GC/MS	Regulation (EC) No 842/2006 and (EU) No 517/2014 https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32014R0517	F Gases have been used as substitutes for ozone-depleting substances. HFCs may be used as foam blowing agents, solvents, fire retardants, aerosol propellants, and refrigerants. PFCs are commonly used within electrical transmission equipment and circuit breakers. May be found in: - Foam blowing agents Solvents - Fire retardants - Aerosol propellants - Refrigerants - Electrical transmission equipment	

Ozon Depleting Substances						
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance					
Various	See Regulation (EC) No 1005/2009 for complete list	5 ppm	GC/MS	Regulation (EC) No 1005/2009: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=C ELEX:32009R1005	<p>Ozone depleting substances (ODS) are a family of chemicals known to significantly damage the atmosphere's ozone layer. Ozone depleting substances are broken down by ultraviolet (UV) radiation to chlorine and bromine which in turn deplete the ozone layer.</p> <p>Historically, ODS have been used as foaming or blowing agents in polyurethane (PU) foams, cleaning solvents and dry-cleaning agents, refrigeration and air conditioning, and fire suppression and explosion protection. In general, ODS are not in routine use in the apparel and footwear industry.</p>	

Pesticides, Agricultural						
Restricted Substance		Marimekko Limit	Test method & Reporting limit	Regulation & Country	Potential uses	SVHC
CAS No.	Substance	0,5 mg/kg each	Textile & leather: ISO 15913 DIN 38407 F2 EPA 8081/EPA 8151A BVL L 00.00-34:2010-09		May be found in natural fibres (primarily cotton). Pesticides may be used in upstream agricultural processes to manage a variety of pests. Pesticides may also be added to animal skins such as leather, or to animal fibers such as wool. Pesticides may also be used to control pests or vegetation around facilities.	
Various	See Appendix 02 for complete list					

