TOM TAILOR GROUP **MRSL**

Group	Substance	CAS-No.	Test Method	DETECTION LIMIT	TEST LIMIT		Potential uses in textile and footwear processing
				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers	Nonylphenol (NP), mixed isomers	104-40-5, 11066-49-2 25154-52-3 84852-15-3	in-house method	20	250	250	APEOs can be used as or found in: detergents, scouring agents, spinning oils, wetting agents, softeners, emulsifier/dispersing agents for dyes and prints, impregnating agents, de-gumming for silk production, dyes and pigment preparations, polyester padding and down/feather fillings
	Octylphenol (OP), mixed isomers	140-66-9 1806-26-4 27193-28-8		20	250	250	
	Octylphenol ethoxylates (OPEO)	9002-93-1 9036-19-5 68987-90-6		20	500	500	
	Nonylphenol ethoxylates (NPEO)	9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0		20	500	500	
Chlorobenzenes and Chlorotoluenes	1,2-dichlorobenzene	95-50-1	with reference to DIN 54232, GC-MS analysis	5	1000	1000	Chlorobenzenes and chlorotoluenes (chlorinated aromatic hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/polyester fibres. They can also be used as solvents.
	Other isomers of mono-, di-, tri-, tetra-, penta- and hexa-chlorobenzene and mono-, di-, tri-, tetra- and penta-chlorotoluene			Each: 5	Sum: 200	Sum: 200	
Chlorophenols	Tetrachlorophenol (TeCP)	25167-83-3	with reference to §64 LFGB, BVL, B 82.02.8-2001, GC-ECD analysis	5	Sum: 20	Sum: 20	Chlorophenols are polychlorinated compounds used as preservatives or pesticides. Pentachlorophenol (PCP) and tetrachlorophenol (TeCP) are sometimes used to prevent mould and kill insects when growing cotton and when storing/transporting fabrics. PCP/TeCP can also be used as a preservative in print pastes
	Pentachlorophenol (PCP)	87-86-5		5			
	Mono-, di-, tri- and tetra- chlorophenols			Each: 5	Sum: 50	Sum: 50	

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Dyes – Azo (Forming Restricted Amines)	4,4'-methylene-bis-(2-chloro-aniline)	101-14-4	Textile formulation: ISO 14362-1:2017, GC/MS or HPLC-DAD analysis Leather formulation: ISO 17234-1:2015	10	150	150	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
	4,4'-methylenedianiline	101-77-9		10	150	150	
	4,4'-oxydianiline	101-80-4		10	150	150	
	4-chloroaniline	106-47-8		10	150	150	
	3,3'-dimethoxylbenzidine	119-90-4		10	150	150	
	3,3'-dimethylbenzidine	119-93-7		10	150	150	
	6-methoxy-m-toluidine	120-71-8		10	150	150	
	2,4,5-trimethylaniline	137-17-7		10	150	150	
	4,4'-thiodianiline	139-65-1		10	150	150	
	4-aminoazobenzene	60-09-3		10	150	150	
	4-methoxy-m-phenylenediamine	615-05-4		10	150	150	
	4,4'-methylenedi-o-toluidine	838-88-0		10	150	150	
	2,6-xylidine	87-62-7		10	150	150	
	o-anisidine	90-04-0		10	150	150	
	2-naphthylamine	91-59-8		10	150	150	
	3,'3-dichlorobenzidine	91-94-1		10	150	150	
	4-aminodiphenyl	92-67-1		10	150	150	
	Benzidine	92-87-5		10	150	150	
	o-toluidine	95-53-4		10	150	150	
	2,4-Xylidine	95-68-1		10	150	150	
	4-chloro-o-toluidine	95-69-2		10	150	150	
	4-methyl-m-phenylenediamine	95-80-7		10	150	150	
	o-aminoazotoluene	97-56-3		10	150	150	
	5-nitro-o-toluidine	99-55-8		10	150	150	
Dyes – Navy Blue Colourant	Component 1: C39H23ClCrN7O12S – 2Na	118685-33-9	DIN 54231	15	250	250	Navy Blue colourants are regulated and should no longer be used for dyeing of textiles
	Component 2: C46H30CrN10O20SS – 3Na	/					

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Dyes – Carcinogenic or Equivalent Concern	Direct Black 38	1937-37-7	DIN 54231	15	250	250	Most of these substances are regulated and should no longer be used for dyeing of textiles
	Direct Blue 6	2602-46-2		15	250	250	
	Acid Red 26	3761-53-3		15	250	250	
	Basic Red 9	569-61-9		15	250	250	
	Direct Red 28	573-58-0		15	250	250	
	Basic Violet 14	632-99-5		15	250	250	
	Disperse Blue 1	2475-45-8		15	250	250	
	Disperse Blue 3	2475-46-9		15	250	250	
	Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5		15	250	250	
	Basic Green 4 (malachite green)	10309-95-2 / 569-64-2 / 2437-29-8		15	250	250	
	C.I. Disperse Orange 11	82-28-0		15	250	250	
Dyes – Disperse (Sensitizing)	Disperse Yellow 1	119-15-3	DIN 54231	15	250	/	Disperse dyes are a class of water-insoluble dyes that penetrate the fibre system of synthetic or manufactured fibres and are held in place by physical forces without forming chemical bonds. Disperse dyes are used in synthetic fibre (e.g., polyester, acetate, polyamide). Restricted disperse dyes are suspected of causing allergic reactions and should no longer be used for dyeing of textiles
	Disperse Blue 102	69766-79-6/ 12222-97-8		15	250	/	
	Disperse Blue 106	68516-81-4/ 12223-01-7		15	250	/	
	Disperse Yellow 39	12236-29-2		15	250	/	
	Disperse Orange 37/76	13301-61-6		15	250	/	
	Disperse Brown 1	23355-64-8		15	250	/	
	Disperse Orange 1	2581-69-3		15	250	/	
	Disperse Yellow 3	2832-40-8		15	250	/	
	Disperse Red 11	2872-48-2		15	250	/	
	Disperse Red 1	2872-52-8		15	250	/	
	Disperse Red 17	3179-89-3		15	250	/	
	Disperse Blue 7	3179-90-6		15	250	/	
	Disperse Blue 26	3860-63-7		15	250	/	
	Disperse Yellow 49	54824-37-2		15	250	/	
	Disperse Blue 124	61951-51-7		15	250	/	
	Disperse Yellow 9	6373-73-5		15	250	/	
	Disperse Orange 3	730-40-5		15	250	/	
	Disperse Blue 35	56524-77-7 / 56524-76-6		15	250	/	
Fat Liquoring Agents	Short Chain Chlorinated Paraffin (C10 - C13)	85535-84-8	ISO 18219	50	/	250	

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Flame Retardants	Tris(chloroethyl)phosphate (TCEP)	115-96-8	Textile formulation: ISO 18219 Leather formulation: in-house method	5	250	250	Flame retardant chemicals are rarely used to meet flammability requirements in children's clothing and adult products. They should no longer be used in apparel and footwear
	Decabromodiphenyl Ether (DecaBDE)	1163-19-5		5	250	250	
	Tris-(2,3-dibromopropyl) phosphate (TRIS)	126-72-7		5	250	250	
	Pentabromodiphenyl Ether (PentaBDE)	32534-81-9		5	250	250	
	Octabromodiphenyl Ether (OctaBDE)	32536-52-0		5	250	250	
	Bis-(2,3-dibromopropyl) phosphate (BDBPP)	5412-25-9		5	250	250	
	Tris-(aziridinyl)phosphine oxide (TEPA)	545-55-1		5	250	250	
	Polybrominated biphenyls (PBBs)	59536-65-1		5	250	250	
	Tetrabromobisphenol A (TBPPA)	79-94-7		5	250	250	
	Hexabromocyclododecane (HBCDD) and all isomers	25637-99-4		5	250	250	
	2,2-Bis(bromoethyl)-1,3-propanediol (BBMP)	3296-90-0		5	250	250	
	Tris(2-chloro-1-(chloromethyl)ethyl)phosphate (TDCP)	13674-87-8		5	250	250	
	Paraffin, C10-13, chlorinated (SCCP)	85535-84-8		50	50	/	
Glycols	Bis(2-methoxyethyl)-ether	111-96-6	in-house	10	50	50	In apparel and footwear, glycols have a wide range of uses including as solvents for finishing/cleaning, printing agents, and dissolving and diluting fats, oils and adhesives (e.g., in degreasing or cleaning operations)
	2-ethoxyethanol	110-80-5		10	50	50	
	2-ethoxyethyl acetate	111-15-9		10	50	50	
	Ethylene glycol dimethyl ether	110-71-4		10	50	50	
	2-methoxyethanol	109-86-4		10	50	50	
	2-methoxyethylacetate	110-49-6		10	50	50	
	2-methoxypropylacetate	70657-70-4		10	50	/	
	Triethylene glycol dimethyl ether	112-49-2		10	50	50	

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Halogenated Solvents	1,2-dichloroethane	107-06-2	in-house	1	5	5	In apparel and footwear, solvents are used as finishing/cleaning and printing agents, for dissolving and diluting fats, oils and adhesives (e.g., in degreasing or cleaning operations).
	Methylene chloride	75-09-2		1	5	5	
	Trichloroethylene	79-01-6		1	40	40	
	Tetrachloroethylene	127-18-4		1	5	5	
Organotin Compounds	Dibutyltin (DBT)	/	ISO/TS 16179	1	20	20 (*EXCEPTION*'100 for polyurethane based thickeners used at <20% loading)	Organotins are a 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.
	Monomethyltin (MMT)	/		1	5	5	
	Dimethyltin (DMT)	/		1	5	5	
	Trimethyltin (TMT)	/		1	5	5	
	Monobutyltin (MBT)	/		1	5	5	
	Tributyltin (TBT)	/		1	5	5	
	Monooctyltin (MOT)	/		1	5	5	
	Dioctyltin (DOT)	/		1	5	5	
	Trioctyltin (TOT)	/		1	5	5	
	Monophenyltin (MPhT)	/		1	5	5	
	Diphenyltin (DPhT)	/		1	5	5	
	Triphenyltin (TPhT)	/		1	5	5	
	Tripropyltin (TPT)	/		Not in ZDHC MRSL Scope	Not in ZDHC MRSL Scope		
	Tetrabutyltin (TeBT)	/					
	Tricyclohexyltin (TCyHT)	/					

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Polycyclic Aromatic Hydrocarbons (PAHs)	Benzo(a)pyrene (BaP)	50-32-8	AfPS GS 2014:01 PAK	5	20	20	Polycyclic aromatic hydrocarbons (PAHs) are natural components of crude oil and are a common residue from oil refining. PAHs have a characteristic smell similar to the smell 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 of screen prints. PAHs can be present as impurities in Carbon Black. They also may be formed from thermal decomposition of recycled materials during reprocessing. Naphthalene: Dispersing agents for textile dyes may contain high residual naphthalene concentrations due to the use of low quality naphthalene derivatives (e.g., poor quality naphthalene sulphonate formaldehyde condensation products).
	Antracene	120-12-7		5	Sum: 200	Sum: 200	
	Pyrene	129-00-0		5			
	Benzo(ghi)perylene	191-24-2		5			
	Benzo(e)pyrene	192-97-2		5			
	Indeno(1,2,3-cd)pyrene	193-39-5		5			
	Benzo(j)fluoroanthene	205-82-3		5			
	Benzo(b)fluoroanthene	205-99-2		5			
	Fluoranthene	206-44-0		5			
	Benzo(k)fluoroanthene	207-08-9		5			
	Acenaphthylene	208-96-8		5			
	Chrysene	218-01-9		5			
	Dibenzo(a,h)anthracene	53-70-3		5			
	Benzo(a)anthracene	56-55-3		5			
	Acenaphthene	83-32-9		5			
	Phenanthrene	85-01-8		5			
	Fluorene	86-73-7		5			
	Naphthalene	91-20-3		5			
Perfluorinated and Polyfluorinated Chemicals (PFCs)	Perfluorooctane sulphonates (PFOS)	1763-23-1	in-house	1	Sum: 2	Sum: 2	PFOA and PFOS may be present as unintended by-products in long-chain commercial water, oil and stain repellent agents. PFOA also may be in use for polymers like polytetrafluoroethylene (PTFE).
	Perfluorooctanoic acid (PFOA)	335-67-1		1	Sum: 2	Sum: 2	

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Phthalates	Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	in-house	50	Sum: 250	Sum: 250	Esters of ortho-phthalic acid (phthalates) are a class of organic compounds commonly added to plastics to increase flexibility. They are sometimes used to facilitate 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 sleevings • Polymeric coatings
	Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8		50			
	Di-n-octyl Phthalate (DNOP)	117-84-0		50			
	Diisodecyl Phthalate (DIDP)	26761-40-0		50			
	Diisononyl Phthalate (DINP)	28553-12-0		50			
	Di-n-hexyl phthalate (DnHP)	84-75-3		50			
	Dibutyl Phthalate (DBP)	84-74-2		50			
	Butyl benzyl phthalate (BBP)	85-68-7		50			
	Dinonyl phthalate (DNP)	84-76-4		50			
	Diethyl phthalate (DEP)	84-66-2		50			
	Di-n-propyl phthalate (DPRP)	131-16-8		50			
	Di-isobutyl phthalate (DIBP)	84-69-5		50			
	Di-cyclohexyl phthalate (DCHP)	84-61-7		50			
	Di-iso-octyl phthalate (DIOP)	27554-26-3		50			
	1,2-benzenedicarboxylic acid, di-C7-11-branched and linearalkyl esters (DHNUP)	68515-42-4		50			
	1,2-benzenedicarboxylic acid,di-C6-8-branched alkyl esters,C7-rich (DIHP)	71888-89-6		50			

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				Input: Chemical Formulations mg/kg	Input: Chemical Formulations (Textile) in mg/kg	Input: Chemical Formulations (Leather) in mg/kg	
Total Heavy Metals	Arsenic (As)	7440-38-2	total digestion	10	50	50	Arsenic and its compounds can be used in some preservatives, pesticides and defoliants for cotton. It is also associated with synthetic fibres, paints, inks, trims, and plastics.
	Cadmium (Cd)	7439-92-1		10	20 Pigment: 50	20 Pigment: 50	Cadmium compounds are found in or used as: pigments (particularly red, orange, yellow and green), a stabilizer for PVC plastic, and in fertilizers, biocides and paints (e.g., surface paints on zippers and buttons).
	Lead (Pb)	7440-43-9		10	100	100	Mercury compounds can be present in pesticides and can be found as contamination in caustic soda (NaOH). Mercury compounds may be used in paints (e.g., surface paints on zippers and buttons).
	Mercury (Hg)	7439-97-6		2	4 Pigment: 25	4 Pigment: 25	In apparel and footwear, lead may be associated with plastics, paints, inks, pigments and surface coatings
	Chromium VI (CrVI)	18540-29-9		3	10	10	Although typically associated with leather tanning, chromium VI also may be used in the dyeing of wool (after the chroming process).
Volatile Organic Compounds (VOC)	Benzene	71-43-2	in-house	5	50	50	These volatile organic compounds should not be used in textile auxiliary chemical preparations. They are associated with solvent-based processes like solvent-based polyurethane coatings and glues/adhesives. They should not be used for any kind of facility cleaning or spot cleaning.
	Xylene	1330-20-7		5	500	/	
	o-Cresol	95-48-7		5	500	500	
	p-Cresol	160-44-5		5	500	500	
	m-Cresol	108-39-4		5	500	500	