AVCO CHEM
PRODUCER OF AUXILIARIES & PIGMENTS

TO WHOM IT MAY CONCERN

1st January 2015

ZDHC MRSL Compliant Product List:

Towards Zero Discharge of Hazardous Chemicals Avco Products complying with the ZDHC MRSL 2014

Avco Chem has always been committed to the highest standards of product safety and is actively supporting the objective of removing hazardous chemicals from the textile and clothing supply chain.

The ZDHC Manufacturing Restricted Substance List (MRSL) addresses hazardous substances potentially used and discharged into the environment during manufacturing of textiles and clothing and related processes. It is not limited to those substances that could be present in the finished products.

None of the listed[1] Avco products use as intentional ingredients any of the chemical substance or groups subject to a usage ban as per the ZDHC MRSL 2014[2] :

- Alkylphenols (AP) and Alkylphenol Ethoxylates (APEO)
- Chlorobenzenes & Chlorotoluenes
- Chlorophenols
- Dyes – (Azo (Forming Restricted Amines)*
- Dyes – (Navy Blue Colorant)
- Dyes – (Carcinogenic or Equivalent Concern)
- Dyes – (Disperse (Sensitizing))
- Brominated and chlorinated flame retardants (incl. SCCPs)
- Glycols
- Chlorinated solvents
- Organotin compounds
- Polycyclic aromatic hydrocarbons (PAHs)

[1] pls see Appendix A for Product list
[2] pls see appendix B for a complete list.

- Perfluorinated and Polyfluorinated Chemicals (PFCs)
- Phthalates (including all other esters of ortho-phthalic acid)
- Total Heavy Metals (arsenic, cadmium, mercury, lead, chromium (VI))
- Volatile organic compounds (VOC)

With Best Regards

Zeev Lahat

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CTO

Avco Chemicals ltd

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ZDHC MRSL Compliant Product List (Egypt Export 2014)

ACCELERATOR PEW
ACTIVANT - LTB
ANTIFOAM - H - 50
ANTIFOAM - NS - 300
ANTIFOAM - PR
ANTIFOAM - V7
ANTIFOAM EX HC
ANTIMIGRANT - D
AVCOBINDER - HVN
AVCOBINDER-SPC
AVCOBLANK JET HC
AVCOBLANK JET LFC
AVCOCAR NTO
AVCOCID B46
AVCOCID - PHS
AVCOCID 2EC
AVCOCID ECS
AVCOCID LP CONC XO
AVCOCLEAN - SUPER
AVCOCLEAN SID
AVCOCLEAR - NP
AVCOCLEAR ARC
AVCOCLEAR NF PCN
AVCOFINISH DREAM
AVCOFIX - FF
AVCOFIX NRC
AVCOFIX NYJ
AVCOL - 100
AVCOL - AC
AVCOL - DR
AVCOL - PET
AVCOLON ES
AVCOLON NAL
AVCOLUB - FCI
AVCOMERCE - WET
AVCONAL PLD
AVCONAL - PS
AVCOPRINT DIS
AVCOPRINT DIS W/4
AVCOREZ ECO PLUS
AVCORON P-280
AVCORON PWF
AVCORON WXF
AVCOSAN - 3EP
AVCOSCOUR MA
AVCOSIL SOFT 300
AVCOSLIP - DS - 100
AVCOSLIP - PAS
AVCOSLIP - RF
AVCOSLIP AND
AVCOSLIP COL
AVCOSLIP CPS 300%
AVCOSOFT - HD-S
AVCOSOFT - PE 40
AVCOSOFT CA FLK
AVCOSOFT HDS EX
AVCOSOFT NI 100
AVCOTEX 33105
AVCOTEX AKS-C
AVCOTEX CAN
AVCOTEX CAN HC-XO
AVCOTRYL FE ZP-N
BIOLIT 2090 - L
BIOLUZE MAX HC
BIOLUZE-G-1099
BLANKINOL - AWS
DARCC
DEFOAMER ENS
ELASTOGUM - MEC
ELASTOGUM BASE MI 05
ELASTOGUM MAC 855
ELASTOGUM MAC BASE EX 45
ELASTOGUM-DIN
ELASTOSIL - JWH
ELASTOSIL - KHD
ELASTOSIL - T - 264
LEVELER 1488
LEVELER LBR
LEVOSLIP 2018
MAC 855 BASE
MAC BASE EX 45
NYLOFIX SB
POLYLEV 2000
POLYQUEST - RE
POLYQUEST 1096 N
POLYQUEST 6N
POLYQUEST 9AP
POLYQUEST SA9
SOLVATOL LOD
STABILIZER - CPB
STABILIZER - HP
STABILIZER - HSF
SYNTOBLANK NPS LF
SYNTOBLANK SRJ
SYNTOBLANK SUPRA LF
SYNTOFIX 200

ZDHC MRSL					
CAS No.	**Substance**	**Group A: Raw Material and Finished Product Supplier Guidance**	**Group B: Chemical Supplier Commercial Formulation Limit**	**Potential Uses in Apparel and Footwear Textile Processing**	**General Techniques for Analysing Chemicals**
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers					
104-40-5, 11066-49-2 25154-52-3 84852-15-3	Nonylphenol (NP), mixed isomers	No intentional use	250 ppm	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	Liquid chromatography-Mass spectrometry (LC-MS), Gas chromatography-Mass spectrometry (GC-MS)
140-66-9 1806-26-4 27193-28-8	Octylphenol (OP), mixed isomers		250 ppm		
9002-93-1 9036-19-5 68987-90-6	Octylphenol ethoxylates (OPEO)		500 ppm		
9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0	Nonylphenol ethoxylates (NPEO)		500 ppm		
Chlorobenzenes and Chlorotoluenes					
95-50-1	1,2-dichlorobenzene	No intentional use	1000 ppm	Chlorobenzenes and chlorotoluenes (chlorinated aromatic hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/polyester fibres. They can also be used as solvents.	GC-MS
Other isomers of mono-, di-, tri-, tetra-, penta- and hexa- chlorobenzene and mono-, di-, tri-, tetra- and penta- chlorotoluene			Sum = 200 ppm		
Chlorophenols					
25167-83-3	Tetrachlorophenol (TeCP)	No intentional use	Sum = 20 ppm	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.	GC-MS
87-86-5	Pentachlorophenol (PCP)				
Mono-, di-, and tri- chlorophenols			Sum = 50 ppm		

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Dyes – Azo (Forming Restricted Amines)					
101-14-4	4,4'-methylene-bis-(2-chloro-aniline)	No intentional use	200 ppm	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.	LC, GC
101-77-9	4,4'-methylenedianiline		200 ppm		
101-80-4	4,4'-oxydianiline		200 ppm		
106-47-8	4-chloroaniline		200 ppm		
119-90-4	3,3'-dimethoxylbenzidine		200 ppm		
119-93-7	3,3'-dimethylbenzidine		200 ppm		
120-71-8	6-methoxy-m-toluidine		200 ppm		
137-17-7	2,4,5-trimethylaniline		200 ppm		
139-65-1	4,4'-thiodianiline		200 ppm		
60-09-3	4-aminoazobenzene		200 ppm		
615-05-4	4-methoxy-m-phenylenediamine		200 ppm		
838-88-0	4,4'-methylenedi-o-toluidine		200 ppm		
87-62-7	2,6-xylidine		200 ppm		
90-04-0	o-anisidine		200 ppm		
91-59-8	2-naphthylamine		200 ppm		
91-94-1	3,'3-dichlorobenzidine		200 ppm		
92-67-1	4-aminodiphenyl		200 ppm		
92-87-5	Benzidine		200 ppm		
95-53-4	o-toluidine		200 ppm		
95-68-1	2,4-Xylidine		200 ppm		
95-69-2	4-chloro-o-toluidine		200 ppm		
95-80-7	4-methyl-m-phenylenediamine		200 ppm		
97-56-3	o-aminoazotoluene		200 ppm		
99-55-8	5-nitro-o-toluidine		200 ppm		
Dyes – Navy Blue Colourant					
118685-33-9	Component 1: C39H23ClCrN7O12S·2Na	No intentional use	250 ppm	Navy Blue colourants are regulated and should no longer be used for dyeing of textiles.	LC
Not Allocated	Component 2: C46H30CrN10O20S2·3Na				

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Dyes – Carcinogenic or Equivalent Concern					
1937-37-7	C.I. Direct Black 38	No intentional use	250 ppm	Most of these substances are regulated and should no longer be used for dyeing of textiles.	LC
2602-46-2	C.I. Direct Blue 6		250 ppm		
3761-53-3	C.I. Acid Red 26		250 ppm		
569-61-9	C.I. Basic Red 9		250 ppm		
573-58-0	C.I. Direct Red 28		250 ppm		
632-99-5	C.I. Basic Violet 14		250 ppm		
2475-45-8	C.I. Disperse Blue 1		250 ppm		
2475-46-9	C.I. Disperse Blue 3		250 ppm		
2580-56-5	C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)		250 ppm		
569-64-2	C.I. Basic Green 4 (malachite green chloride)		250 ppm		
2437-29-8	C.I. Basic Green 4 (malachite green oxalate)		250 ppm		
10309-95-2	C.I. Basic Green 4 (malachite green)		250 ppm		
82-28-0	Disperse Orange 11		250 ppm		
Dyes – Disperse (Sensitizing)					
119-15-3	Disperse Yellow 1	No intentional use	250 ppm	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.	LC
12222-97-8	Disperse Blue 102		250 ppm		
12223-01-7	Disperse Blue 106		250 ppm		
12236-29-2	Disperse Yellow 39		250 ppm		
13301-61-6	Disperse Orange 37/59/76		250 ppm		
23355-64-8	Disperse Brown 1		250 ppm		
2581-69-3	Disperse Orange 1		250 ppm		
2832-40-8	Disperse Yellow 3		250 ppm		
2872-48-2	Disperse Red 11		250 ppm		
2872-52-8	Disperse Red 1		250 ppm		
3179-89-3	Disperse Red 17		250 ppm		
3179-90-6	Disperse Blue 7		250 ppm		
3860-63-7	Disperse Blue 26		250 ppm		
54824-37-2	Disperse Yellow 49		250 ppm		
12222-75-2	Disperse Blue 35		250 ppm		
61951-51-7	Disperse Blue 124		250 ppm		
6373-73-5	Disperse Yellow 9		250 ppm		
730-40-5	Disperse Orange 3		250 ppm		
56524-77-7	Disperse Blue 35		250 ppm		

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Flame Retardants					
115-96-8	Tris(2-chloroethyl)phosphate (TCEP)	No intentional use	250 ppm	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.	GC-MS
1163-19-5	Decabromodiphenyl ether (DecaBDE)		250 ppm		
126-72-7	Tris(2,3,-dibromopropyl)-phosphate (TRIS)		250 ppm		
32534-81-9	Pentabromodiphenyl ether (PentaBDE)		250 ppm		
32536-52-0	Octabromodiphenyl ether (OctaBDE)		250 ppm		
5412-25-9	Bis(2,3-dibromopropyl)phosphate (BIS)		250 ppm		
545-55-1	Tris(1-aziridinyl)phosphine oxide) (TEPA)		250 ppm		
59536-65-1	Polybromobiphenyls (PBB)		250 ppm		
79-94-7	Tetrabromobisphenol A (TBBPA)		250 ppm		
3194-55-6	Hexabromocyclodecane (HBCDD)		250 ppm		
3296-90-0	2,2-bis(bromomethyl)-1,3-propanediol (BBMP)		250 ppm		
13674-87-8	Tris(1,3-dichloro-isopropyl) phosphate (TDCP)		250 ppm		
85535-84-8	Short-chain chlorinated Paraffins (SCCP) (C10-C13)		50 ppm		
Glycols					
111-96-6	Bis(2-methoxyethyl)-ether	No intentional use	50 ppm	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).	High-performance liquid chromatography (HPLC), LC-MS
110-80-5	2-ethoxyethanol		50 ppm		
111-15-9	2-ethoxyethyl acetate		50 ppm		
110-71-4	Ethylene glycol dimethyl ether		50 ppm		
109-86-4	2-methoxyethanol		50 ppm		
110-49-6	2-methoxyethylacetate		50 ppm		
70657-70-4	2-methoxypropylacetate		50 ppm		
112-49-2	Triethylene glycol dimethyl ether		50 ppm		
Halogenated Solvents					
107-06-2	1,2-dichloroethane	No intentional use	5 ppm	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).	GC-MS
75-09-2	Methylene chloride		5 ppm		
79-01-6	Trichloroethylene		40 ppm		
127-18-4	Tetrachloroethylene		5 ppm		

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Organotin Compounds					
Multiple	Dibutyltin (DBT)	No intentional use	20 ppm	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.	GC-MS, low resolution mass spectrometry (LRMS)
Multiple	Dimethyltin (DMT)		5 ppm		
Multiple	Monobutyltin (MBT)		5 ppm		
Multiple	Monooctyltin (MOT)		5 ppm		
Multiple	Dioctyltin (DOT)		5 ppm		
Multiple	Tricyclohexyltin (TCyHT)		5 ppm		
Multiple	Trioctyltin (TOT)		5 ppm		
Multiple	Tripropyltin (TPT)		5 ppm		
Multiple	Tributyltin (TBT)		5 ppm		
Multiple	Trimethyltin (TMT)		5 ppm		
Multiple	Triphenyltin (TPhT)		5 ppm		
Multiple	Tetrabutyltin (TebT)		5 ppm		
Polycyclic Aromatic Hydrocarbons (PAHs)					
50-32-8	Benzo[a]pyrene (BaP)	No intentional use	20 ppm	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).	GC-MS
120-12-7	Anthracene		Sum = 200 ppm		
129-00-0	Pyrene				
191-24-2	Benzo[ghi]perylene				
192-97-2	Benzo[e]pyrene				
193-39-5	Indeno[1,2,3-cd]pyrene				
205-82-3	Benzo[j]fluoranthene				
205-99-2	Benzo[b]fluoranthene				
206-44-0	Fluoranthene				
207-08-9	Benzo[k]fluoranthene				
208-96-8	Acenaphthylene				
218-01-9	Chrysene				
53-70-3	Dibenz[a,h]anthracene				
56-55-3	Benzo[a]anthracene				
83-32-9	Acenaphthene				
85-01-8	Phenanthrene				
86-73-7	Fluorene				
91-20-3	Naphthalene				

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Perfluorinated and Polyfluorinated Chemicals (PFCs)					
Beginning January 1, 2015: Durable water, oil and stain repellent finishes and soil release finishes (fluorinated polymers) based on long-chain technology are banned from intentional use by ZDHC signatory brands. Long-chain compounds according to the OECD definition (http://www.oecd.org/ehs/pfc/) are based on long-chain perfluorocarboxylic acids (C8 and higher) and on long-chain perfluoroalkyl sulfonates (C6 and higher). The main contaminants of this technology include: • Perfluoroalkyl sulfonates (PFSAs) with carbon chain lengths C6 and higher (e.g., PFOS, perfluorooctane sulfonate) • Perfluorocarboxylic acids with carbon chain lengths C8 and higher (e.g., PFOA, perfluorooctanoic acid)					
Multiple	Perfluorooctane sulfonate (PFOS) and related substances	No intentional use	2 ppm (sum)	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).	LC-MS
335-67-1	Perfluorooctanoic acid (PFOA)		2 ppm		
Phthalates – including all other esters of ortho-phthalic acid					
117-81-7	Di(ethylhexyl) phthalate (DEHP)	No intentional use	Sum of all phthalates = 250 ppm	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	GC-MS
117-82-8	Bis(2-methoxyethyl) phthalate (DMEP)				
117-84-0	Di-n-octyl phthalate (DNOP)				
26761-40-0	Di-iso-decyl phthalate (DIDP)				
28553-12-0	Di-isononyl phthalate (DINP)				
84-75-3	Di-n-hexyl phthalate (DnHP)				
84-74-2	Dibutyl phthalate (DBP)				
85-68-7	Butyl benzyl phthalate (BBP)				
84-76-4	Dinonyl phthalate (DNP)				
84-66-2	Diethyl phthalate (DEP)				
131-16-8	Di-n-propyl phthalate (DPRP)				
84-69-5	Di-isobutyl phthalate (DIBP)				
84-61-7	Di-cyclohexyl phthalate (DCHP)				
27554-26-3	Di-iso-octyl phthalate (DIOP)				
68515-42-4	1,2-benzenedicarboxylic acid, di-C7-11-branched and linearalkyl esters (DHNUP)				
71888-89-6	1,2-benzenedicarboxylic acid,di-C6-8-branched alkyl esters,C7-rich (DIHP)				

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Total Heavy Metals					
Listed metals are banned from intentional use in textile manufacturing/finishing. Additionally, residual traces of antimony, zinc, copper, nickel, tin, barium, cobalt, iron, manganese, selenium and silver in colourants are expected to comply with the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD) concentration limits (http://www.etad.com/).					
7440-38-2	Arsenic (As)	No intentional use	50 ppm	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.	Inductively coupled plasma-optical emission spectrometry (ICP-OES), atomic absorption spectroscopy (AAS)
7440-43-9	Cadmium (Cd)		20 ppm (50 ppm for pigments)	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).	
7439-97-6	Mercury (Hg)		4 ppm (25 ppm for pigments)	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).	
7439-92-1	Lead (Pb)		100 ppm	In apparel and footwear, lead may be associated with plastics, paints, inks, pigments and surface coatings.	
18540-29-9	Chromium (VI)		10 ppm	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)					
71-43-2	Benzene	No intentional use	50 ppm	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.	GC-MS
1330-20-7	Xylene		500 ppm		
95-48-7	o-cresol		500 ppm		
106-44-5	p-cresol		500 ppm		
108-39-4	m-cresol		500 ppm		