

# Chem-MAP<sup>®</sup>

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## TECHNICAL REPORT

for

NAME  
ADDRESS

BLC Job Reference:			
Customer Order No:			
Date Work Confirmed:		Date Completed:	

### c-MAP MRSL Testing

The samples referenced in this report have been assessed against the requirements of the specifications listed for the SELECTED TESTS ONLY. Statements of compliance against any specification relate exclusively to the tests requested by the client and may not be representative of full specification testing.

ZDHC Manufacturing Restricted Substances List V1.1 2015

Chapter 2: MRSL for Leather Processing

According to the requirements, the sample(s) were found to:

Comply/Not Comply

### Additional comments/information (if relevant)

Based on the samples submitted and testing completed, INSERT PRODUCT NAME will be submitted as ZDHC MRSL conformance Level 1 (expires XX/XX/XXXX).

Gabriel Moran Malagon  
Analytical Chemist

Dr Victoria Addy  
Technical Director



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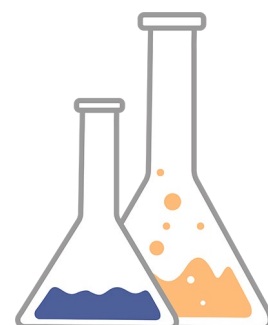
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## DETAILS OF SAMPLE RECEIVED

Sample Reference	Description	Unique Reference/Identifier
S1		
S2		
S3		
S4	Composite of samples S1, S2 and S3	N/A

## TEST RESULTS

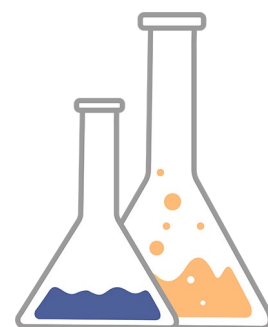
Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): Including All Isomers					
S4	Nonylphenol (NP), mixed isomers	104-40-5	250		Pass
		11066-49-2			
		25154-52-3			
		84852-15-3			
S4	Octylphenol (OP), mixed isomers	140-66-9	250		Pass
		1806-26-4			
		27193-28-8			
S4	Octylphenol ethoxylates (OPEO)	9002-93-1	500		Pass
		9036-19-5			
		68987-90-6			
S4	Nonylphenol ethoxylates (NPEO)	9016-45-9	500		Pass
		26027-38-3			
		37205-87-1			
		68412-54-4			
		127087-87-0			



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Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Chlorobenzenes and Chlorotoluenes					
S4	1,2-dichlorobenzene	95-50-1	1000		Pass
S4	Other isomers of mono-, di-, tri-, tetra-, penta- and hexa- chlorobenzene and mono-, di-, tri-, tetra- and penta-chlorotoluene	Multiple	Sum = 200		Pass
Chlorophenols					
S4	Tetrachlorophenol (TeCP)	25167-83-3	Sum = 20		Pass
	Pentachlorophenol (PCP)	87-86-5			
S4	2,3,4,5-tetrachlorophenol	4901-51-3	Sum = 50		Pass
	2,3,4,6-tetrachlorophenol	58-90-2			
	2,3,5,6-tetrachlorophenol	935-95-5			
	2-chlorophenol	95-57-8			
	2,4-dichlorophenol	120-83-2			
	2,5-dichlorophenol	583-78-8			
	2,6-dichlorophenol	87-65-0			
	2,4,5-trichlorophenol	95-95-4			
	2,4,6-trichlorophenol	88-06-2			
	3,5-dichlorophenol	591-35-5			
	2,3-dichlorophenol	576-24-9			
	3,4-dichlorophenol	95-77-2			
	3-chlorophenol	108-43-0			
	4-chlorophenol	106-48-9			
	2,3,4-trichlorophenol	15950-66-0			
	2,3,5-trichlorophenol	933-78-8			
	3,4,5-trichlorophenol	609-19-8			



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Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Dyes – Azo (Forming Restricted Amines)					
S4	4,4'-methylene-bis-(2-chloro-aniline)	101-14-4	150		Pass
	4,4'-methylenedianiline	101-77-9			Pass
	4,4'-oxydianiline	101-80-4			Pass
	4-chloroaniline	106-47-8			Pass
	3,3'-dimethoxylbenzidine	119-90-4			Pass
	3,3'-dimethylbenzidine	119-93-7			Pass
	6-methoxy-m-toluidine	120-71-8			Pass
	2,4,5-trimethylaniline	137-17-7			Pass
	4,4'-thiodianiline	139-65-1			Pass
	4-aminoazobenzene	60-09-3			Pass
	4-methoxy-m-phenylenediamine	615-05-4			Pass
	4,4'-methylenedi-o-toluidine	838-88-0			Pass
	2,6-xylidine	87-62-7			Pass
	o-anisidine	90-04-0			Pass
	2-naphthylamine	91-59-8			Pass
	3,3'-dichlorobenzidine	91-94-1			Pass
	4-aminodiphenyl	92-67-1			Pass
	Benzidine	92-87-5			Pass
	o-toluidine	95-53-4			Pass
	2,4-xylidine	95-68-1			Pass
	4-chloro-o-toluidine	95-69-2			Pass
	4-methyl-m-phenylenediamine	95-80-7			Pass
	o-aminoazotoluene	97-56-3			Pass
	5-nitro-o-toluidine	99-55-8			Pass
Dyes – Navy Blue Colourant					
S4	Component 1: C39H23ClCrN7O12S·2Na	118685-33-9	250		Pass



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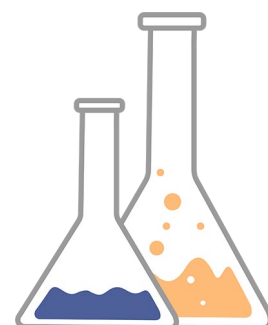
Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Dyes – Carcinogenic or Equivalent Concern					
S4	C.I. Direct Black 38	1937-37-7	250		Pass
S4	C.I. Direct Blue 6	2602-46-2			Pass
S4	C.I. Acid Red 26	3761-53-3			Pass
S4	C.I. Basic Red 9	569-61-9			Pass
S4	C.I. Direct Red 28	573-58-0			Pass
S4	C.I. Basic Violet 14	632-99-5			Pass
S4	C.I. Disperse Blue 1	2475-45-8			Pass
S4	C.I. Disperse Blue 3	2475-46-9			Pass
S4	C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5			Pass
S4	C.I. Basic Green 4 (malachite green chloride)	569-64-2			Pass
S4	C.I. Basic Green 4 (malachite green oxalate)	2437-29-8			Pass
S4	C.I. Basic Green 4 (malachite green)	10309-95-2			Pass
S4	Disperse Orange 11	82-28-0			Pass



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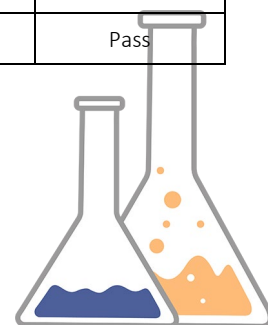
Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Dyes – Disperse (Sensitising)				
Disperse Yellow 1	119-15-3	250		Pass
Disperse Blue 102	12222-97-8			Pass
Disperse Blue 106	12223-01-7			Pass
Disperse Yellow 39	12236-29-2			Pass
Disperse Orange 37/59/76	13301-61-6			Pass
Disperse Brown 1	23355-64-8			Pass
Disperse Orange 1	2581-69-3			Pass
Disperse Yellow 3	2832-40-8			Pass
Disperse Red 11	2872-48-2			Pass
Disperse Red 1	2872-52-8			Pass
Disperse Red 17	3179-89-3			Pass
Disperse Blue 7	3179-90-6			Pass
Disperse Blue 26	3860-63-7			Pass
Disperse Yellow 49	54824-37-2			Pass
Disperse Blue 35	12222-75-2 56524-77-7			Pass
Disperse Blue 124	61951-51-7			Pass
Disperse Yellow 9	6373-73-5			Pass
Disperse Orange 3	730-40-5			Pass
Disperse Blue 35				Pass



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Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Flame Retardants					
S4	Tris(2-chloroethyl)phosphate (TCEP)	115-96-8	250		Pass
	Decabromodiphenyl ether (DecaBDE)	1163-19-5			Pass
	Tris(2,3,-dibromopropyl)-phosphate (TRIS)	126-72-7			Pass
	Pentabromodiphenyl ether (PentaBDE)	32534-81-9			Pass
	Octabromodiphenyl ether (OctaBDE)	32536-52-0			Pass
	Bis(2,3-dibromopropyl)phosphate (BIS)	5412-25-9			Pass
	Tris(1-aziridinyl)phosphine oxide (TEPA)	545-55-1			Pass
	Polybromobiphenyls (PBB)	59536-65-1			Pass
	Tetrabromobisphenol A (TBBPA)	79-94-7			Pass
	Hexabromocyclodecane (HBCDD)	3194-55-6			Pass
	2,2-bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0			Pass
	Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8			Pass
S4	Short-chain chlorinated Paraffins (SCCP) (C10-C13)	85535-84-8	50		Pass
Glycol Ethers					
S4	Bis(2-methoxyethyl)-ether	111-96-6	50		Pass
	2-ethoxyethanol	110-80-5			Pass
	2-ethoxyethyl acetate	111-15-9			Pass
	Ethylene glycol dimethyl ether	110-71-4			Pass
	2-methoxyethanol	109-86-4			Pass
	2-methoxyethylacetate	110-49-6			Pass
	Triethylene glycol dimethyl ether	112-49-2			Pass
	2-methoxypropylacetate	70657-70-4	1000		Pass
Halogenated Solvents					
S4	1,2-dichloroethane	107-06-2	5		Pass
	Methylene chloride	75-09-2	5		Pass
	Trichloroethylene	79-01-6	40		Pass
	Tetrachloroethylene	127-18-4	5		Pass



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Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Organotin Compounds					
S4	Dibutyltin (DBT)	Multiple	20 (100 for polyurethane thickeners)		Pass
	Monomethyltin derivatives	Multiple	5		Pass
	Dimethyltin derivatives				
	Trimethyltin derivatives				
	Monobutyltin derivatives	Multiple	5		Pass
	Tributyltin derivatives				
	Monophenyltin derivatives	Multiple	5		Pass
	Diphenyltin derivatives				
	Triphenyltin derivatives				
	Mono-octyltin derivatives	Multiple	5		Pass
	Diocetyl tin derivatives				
	Triocetyl tin derivatives				

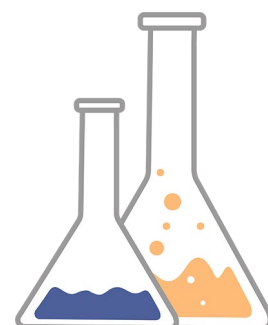




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Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Polycyclic Aromatic Hydrocarbons (PAHs)					
S4	Benzo[a]pyrene (BaP)	50-32-8	20		Pass
	Anthracene	120-12-7	Sum = 200		Pass
	Pyrene	129-00-0			
	Benzo[ghi]perylene	191-24-2			
	Benzo[e]pyrene	192-97-2			
	Indeno[1,2,3-cd]pyrene	193-39-5			
	Benzo[j]fluoranthene	205-82-3			
	Benzo[b]fluoranthene	205-99-2			
	Fluoranthene	206-44-0			
	Benzo[k]fluoranthene	207-08-9			
	Acenaphthylene	208-96-8			
	Chrysene	218-01-9			
	Dibenz[a,h]anthracene	53-70-3			
	Benzo[a]anthracene	56-55-3			
	Acenaphthene	83-32-9			
	Phenanthrene	85-01-8			
	Fluorene	86-73-7			
	Naphthalene	91-20-3	300		Pass



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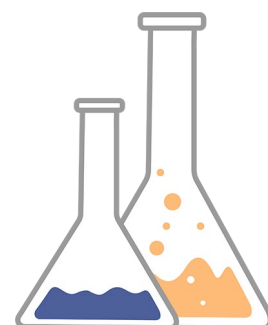
Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Perfluorinated and Polyfluorinated Chemicals (PFCs)					
S4	Perfluorooctane sulfonate (PFOS) and related substances	Multiple	Sum = 2		Pass
S4	Perfluorooctanoic acid (PFOA) and related substances	Multiple	Sum = 2		Pass
Phthalates – Including All Other Esters of Ortho-phthalic Acid					
S4	Di(ethylhexyl) phthalate (DEHP)	117-81-7	Sum of all phthalates = 250		Pass
	Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8			
	Di-n-octyl phthalate (DNOP)	117-84-0			
	Di-iso-decyl phthalate (DIDP)	26761-40-0			
	Di-isononyl phthalate (DINP)	28553-12-0			
	Di-n-hexyl phthalate (DnHP)	84-75-3			
	Dibutyl phthalate (DBP)	84-74-2			
	Butyl benzyl phthalate (BBP)	85-68-7			
	Dinonyl phthalate (DNP)	84-76-4			
	Diethyl phthalate (DEP)	84-66-2			
	Di-n-propyl phthalate (DPRP)	131-16-8			
	Di-isobutyl phthalate (DIBP)	84-69-5			
	Di-cyclohexyl phthalate (DCHP)	84-61-7			
	Di-iso-octyl phthalate (DIOP)	27554-26-3			
	1,2-benzenedicarboxylic acid, di-C7-11-branched and linearalkyl esters (DHNUP)	68515-42-4			
	1,2-benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6			



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Sample	Substance	CAS No.	Limit (ppm)	Result (ppm)	Pass/Fail
Total Heavy Metals					
S4	Arsenic (As)	7440-38-2	50		Pass
S4	Cadmium (Cd)	7440-43-9	20 (50 for pigments)		Pass
S4	Mercury (Hg)	7439-97-6	4 (25 for pigments)		Pass
S4	Lead (Pb)	7439-92-1	100		Pass
S4	Chromium (VI)	18540-29-9	10		Pass
Volatile Organic Compounds (VOC)					
S4	Benzene	71-43-2	50		Pass
S4	o-cresol	95-48-7	500		Pass
S4	p-cresol	106-44-5			Pass
S4	m-cresol	108-39-4			Pass

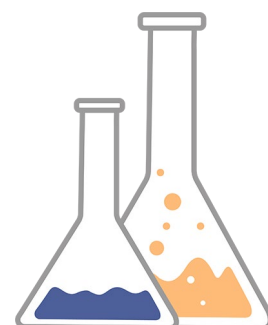


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## METHOD(S) USED FOR ANALYSIS

Test	Method
Alkylphenol (AP)	CMAP001 – A/Ai
Alkylphenol Ethoxylates (APEO)	CMAP001 - B
Navy Blue Colourant, Carcinogenic or Equivalent Concern and Dyes – Disperse (Sensitising)	CMAP001 – C
Flame Retardants	CMAP001 - D
Perfluorinated and Polyfluorinated Chemicals (PFCs), PFOS, PFOA	CMAP001 – E
Phthalates – including all other esters of ortho-phthalic acid	CMAP001 – F
Chlorophenols	CMAP001 - G
Total Heavy Metals	CMAP002 - A
	CMAP002 - B
Organotins	CMAP003
Azo-Dyes	CMAP004
Flame Retardants	CMAP005
Glycols	CMAP006
Halogenated Solvents, Benzene and Xylene	CMAP007
Chlorobenzenes, Chlorotoluene and Cresols (o-cresol, p-cresol and m-cresol)	CMAP008
Chloroparaffins	CMAP009
Polycyclic Aromatic Hydrocarbons (PAHs)	CMAP010



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## STANDARD TECHNICAL NOTES

(all may not be applicable)

Terms and Conditions	Our Terms and Conditions of Testing can be found at <a href="http://www.blcleathertech.com">www.blcleathertech.com</a>
†	Tests within the scope of accreditation
SC	Test performed by a competent, Eurofins   BLC approved partner laboratory
I/S	Insufficient Sample was submitted to perform the test
Opinions	Any opinions and interpretations expressed in this test report are based on current knowledge and experience and fall outside of the scope of ISO 17025 accreditation
Sample disposal	Stable samples will be disposed of after 6 weeks unless otherwise instructed. All other samples will be disposed of on completion of testing
Conditioning	Where necessary, the sample was conditioned and tested at 23°C ± 2°C and 50% ± 5% RH as specified in the reference standard atmosphere requirements of BS EN ISO 2419:2012 (leather) or in the alternative specific standard atmosphere requirements of BS EN ISO 139:2005 + A1:2011 (textile).
ND	None Detected (detection limits are included with the test results)
N/S	Not Scrapable (refers to the finish, meaning it cannot be removed for testing)
GC-MS	Gas Chromatography with Mass Spectroscopy
LC-MS	Liquid Chromatography with Mass Spectroscopy
ICP-MS	Induction Coupled Plasma with Mass Spectroscopy
HPLC	High Performance Liquid Chromatography
Composite analysis	If the result multiplied by the number of composited samples exceeds the requirement, then testing of the individual samples may be performed or recommended.
Azo dyes analysis	Accreditation excludes: 2,4 – Diaminoanisole
BWS	Blue Wool Scale (used for measuring exposure in the UV light fading test)
GSR	Grey scale rating. Used to express degree of staining and/or colour change. GSR 5 = no colour change / no staining; GSR 1 = maximum colour change / maximum staining. Visual assessment of GSR is subjective and associated with an uncertainty of ± half a Grey scale unit. This should be taken into account when determining compliance with a specification. Grey scale results are assessed visually. Multifibre adjacent fabric complies with ISO 105-F10.
Crockmeter – Textile	Testing carried out at 23± 2°C and 50% ± 5% rh. A 16mm rubbing finger with a 9± 0.2N was used. For wet testing a 95-100% level of soak is achieved for the cotton.
BS EN ISO 11644	Test uses a single-component cyanoacrylate adhesive. Where possible four samples are tested and taken from the official sampling position (if known).
Chemical Analysis	Certain tests such as: Phthalates, Carcinogenic dyes, Allergenic disperse dyes, PAHs, Azo dyes, Organotins, Nitrosamines and Pesticides have multiple elements tested. For a full list of chemicals tested within these analyses please refer to the specification cited within this report. For further information contact <a href="mailto:info@blcleathertech.com">info@blcleathertech.com</a>

