

SPELL

Manufacturing Restricted  
Substances List (MRSL)

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Restricted Substances List (RSL)

# Manufacturing Restricted Substances List (MRSL)

## INTRO

Spell is committed to ensure the health of our customers, all workers within our global supply chain and the environment and as such have developed the following Manufacturing Restricted Substance List (MRSL).

## PURPOSE

An MRSL document is designed to complement an RSL in reducing the use and impact of harmful substances in the apparel supply chain.

This MRSL has been created by One Peterson Australia to assist Spell to guide participants within our supply chain to increase product quality, increase product safety, and reduce our environmental impact by limiting the use of certain substances in chemical formulations during the production of apparel and accessories.

## SCOPE

*Chemical Formulation:* A commercial chemical formulation is usually a proprietary blend of several substances that is available for purchase from chemical suppliers and their own trade name.

**Note:** Chemicals on the MRSL include ingredients potentially used in cleaners, solvents, adhesives, stabilizers, paints, inks, detergents, dyes, pigments, auxiliaries, coatings and finishing agents used for wet processing. There should be no intentional use of the MRSL-listed substances in the chemical formulation.

Manufacturing Restricted Substance	Contamination Detection Level (ppm)	Applicable Processes					
		Dyes	Pigments	Printing Inks	Printing Auxiliaries	Dyeing Auxiliaries	Pre-Treatment & Finishing Auxiliaries
<b>Alkylphenol</b> (ethoxylates) NP, OP, NPEO, OPEO sum parameter NP, OP Sum parameter	500 200	✓	✓	✓	✓	✓	✓
<b>AOX</b>	1%	✓	✓	✓			
<b>Arylamines with carcinogenic properties</b> (amine-releasing azo dyes MAK III, category 1,2,3) <b>Aniline</b> (MAK III category 4)	250	✓	✓	✓			
<b>Disperse dyes</b> (classified as allergenic or carcinogenic)	250	✓	✓	✓			
<b>Formaldehyde</b>	150			✓	✓	✓	
<b>Glyoxal and other short-chain aldehydes</b> (mono- and dialdehydes up to C6)	150			✓	✓	✓	
<b>Chlorophenols</b> (PCP, TeCP, TrCP, DCP, MCP)	Sum: 50						
<b>Heavy metals</b> Antimony (Sb), Arsenic (As), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Lead (Pb), Nickel (Ni), Mercury (Hg), Selenium (Se), Tin (Sn), Chromium VI (Ch-VI)	See ETAD*	✓	✓	✓	✓	✓	✓
<b>Organotin compounds:</b> (TBT, TphT, DBT, DOT, MBT, DMT, DPT, MoT,MMT, MPhT, TeBT, TCyHT, TMT, TOT, TPT, DphT, TeET)	Sum: 10						✓
<b>Per- and Polyfluorinated compounds (PFC)</b> individually: PFOA, PFOS FTOH	2						✓
<b>Phthalates</b> Sum parameter (DINP, DMEP, DNOP, DEHP, DIDP, BBP, DBP, DIBP, DEP, DIHP, DHNUP, DCHP, DHxP, DIHxP, DPxP, DHP, DNP, DPP)	250			✓	✓		
<b>Polycyclic Aromatic Hydrocarbons (PAH):</b> Sub parameter Chrysene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo(j)fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Benzo(e)pyrene, Dibenzo[a,h]anthracene, Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Indeno[1,2,3-cd]pyrene, Benzo[g,h,i]perylene	200	✓			✓	✓	✓

**\*ETDA: ECOLOGICAL AND TOXICOLOGICAL ASSOCIATION OF DYESTUFFS AND PIGMENTS MANUFACTURERS**

ANTIMONY: 50 MG/KG, ARSENIC: 50 MG/KG, BARIUM: 100 MG/KG, CADMIUM: 20 MG/KG, COBALT: 500 MG/KG, COPPER: 250 MG/KG, CHROMIUM: 100 MG/KG, IRON: 2500 MG/KG, LEAD: 100 MG/KG, MANGANESE: 1000 MG/KG, NICKEL: 200 MG/KG, MERCURY: 4 MG/KG, SELENIUM: 20 MG/KG, SILVER: 100 MG/KG, ZINC: 1500 MG/KG, TIN: 250MG/KG SPECIAL LIMITS FOR PIGMENTS : CADMIUM : 50 MG/KG; MERCURY : 25 MG/KG.

**DISCLAIMER**

This RSL is not intended to and does not establish any industry standard of care. It does not constitute legal advice and is not a substitute for legal advice. This RSL disclaims liability of any kind whatsoever resulting from any use of, or reliance on, this RSL.

## ABBREVIATIONS

<b>APEO</b>	ALKYLPHENOLETHOXYLATES
<b>AOX</b>	ABSORBABLE HALOGENATED HYDROCARBONS AND SUBSTANCES THAT CAN CAUSE THEIR FORMATION
<b>BBP</b>	BENZYL BUTYL PHTHALATE
<b>DBT</b>	DIBUTYL TIN
<b>DBP</b>	DIBUTYL PHTHALATE
<b>DEHP</b>	DIETHYLHEXYL PHTHALATE
<b>DPP</b>	DIETHYL PHTHALATE
<b>DIBP</b>	DI-ISOBUTYL PHTHALATE
<b>DIDP</b>	DIISODECYL PHTHALATE
<b>DINP</b>	DIISONONYL PHTHALATE
<b>DMEP</b>	BIS(2-METHOXYETHYL) PHTHALATE
<b>DNOP</b>	DI-N-OCTYL PHTHALATE
<b>DEP</b>	DIETHYL PHTHALATE
<b>DIHP</b>	DI-C6-9 BRANCHED ALKYL PHTHALATES
<b>DNP</b>	DI-N-NONYL PHTHALATE
<b>DHTDMAC</b>	DIHYDROGENATED TALLOW DIMETHYLAMMONIUM CHLORIDE
<b>DHNUP DI-C7-11</b>	BRANCHED AND LINEAR ALKYL PHTHALATES
<b>DCHP DI</b>	CYCLOHEXYL PHTHALATE
<b>DHXP</b>	DI HEXYL PHTHALATES
<b>DIHXP</b>	DI-ISO HEXYL PHTHALATE
<b>DPRP</b>	DI-N-PROPYL PHTHALATE
<b>DHP</b>	DI-N -HEXYL PHTHALATE
<b>DPHT</b>	DIPHENYL TIN
<b>DPT</b>	DIPROPYL TIN
<b>DTDMAC</b>	DITALLOW DIMETHYLAMMONIUM CHLORIDE
<b>DSDMAC</b>	DISTEARYL DIMETHYLAMMONIUM CHLORIDE
<b>DTPA</b>	DIETHYLENEDIAMINE PENTA-ACETATE
<b>EDTA</b>	ETHYLENEDIAMINE TETRA-ACETATE
<b>FTOH</b>	FLUOROTELOMER ALCOHOL
<b>MBT</b>	MONOBUTYL TIN

<b>MAK</b>	MAXIMUM ALLOWABLE CONCENTRATION (OF A SUBSTANCE AT THE WORKING PLACE)
<b>MMT</b>	MONOMETHYL TIN
<b>MOT</b>	MONOOCTYL TIN
<b>MPHT</b>	MONOPHENYL TI
<b>NP</b>	NONYL PHENOL
<b>NPEO</b>	NONYL PHENOL ETHOXYLATES
<b>NTA</b>	NITRILOTRIACETIC ACID
<b>OP</b>	OCTYL PHENOL
<b>OPEO</b>	OCTYL PHENOL ETHOXYLATES
<b>LAS</b>	LINEAR ALKYL BENZENE SULPHONATE
<b>PAH</b>	POLYCYCLIC AROMATIC HYDROCARBONS
<b>PCB</b>	POLYCHLORINATED BIPHENYLS
<b>PCP</b>	PENTACHLOROPHENO
<b>PFCA</b>	PERFLUORINATED CARBOXYLIC ACIDS
<b>PFOA</b>	PERFLUORO OCTANOIC ACID
<b>PFOS</b>	PERFLUROOCTANE SULFONATE
<b>PFSA</b>	PERFLUOROSULFONIC ACIDS
<b>PVC</b>	POLYVINYL CHLORIDE
<b>TBT</b>	TRIBUTYL TIN
<b>TECP</b>	TETRACHLOROPHENOL
<b>TOC</b>	TOTAL ORGANIC CARBON
<b>TPHT</b>	TRIPHENYL TIN
<b>TEBT</b>	TETRABUTYL TIN
<b>TEET</b>	TETRAETHYL TIN
<b>TCYHT</b>	TRICYCLOHEXYL TIN
<b>TMT</b>	TRIMETHYL TIN
<b>TOT</b>	TRIOCTYL TIN
<b>TPT</b>	TRIPROPYL TIN

# Restricted Substances List (RSL)

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Spell is committed to ensure the health of our customers, all workers within our global supply chain and the environment and as such have developed the following Restricted Substance List (RSL).

## PURPOSE

An RSL document is designed to reduce the use and impact of harmful substances in the apparel supply chain.

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## SCOPE

*Apparel:* Any garment worn on the body to protect, cover or adorn.

*Accessories:* Any product intended to compliment apparel, both carried and worn (excludes jewellery).

**Note:** The limits expressed in the table are recommended conditions and quality expectations for testing chemical formulations. Testing is based on a smart approach, i.e. not every type of article needs to be tested for each RSL parameter.

Restricted Substance	Recommended Maximum Limit (ppm)			Applicable Fibre		
	Baby	Children	Adult	Natural	Synthetic	Accessory
<b>Alkylphenol</b> (ethoxylates) NP, OP, NPEO, OPEO sum parameter NP, OP Sum parameter	100 50	120 100	150 120	✓	✓	
<b>AOX</b>	20	50	100	✓	✓	
<b>Arylamines with carcinogenic properties</b> (amine-releasing azo dyes MAK III, category 1,2,3) <b>Aniline</b> (MAK III category 4)	30 120	30 120	30 120	✓	✓	✓
<b>Disperse dyes</b> (classified as allergenic or carcinogenic)	50	70	100		✓	✓
<b>Formaldehyde</b>	< 16	< 75	< 75	✓	✓	✓
<b>Glyoxal and other short-chain aldehydes</b> (mono- and dialdehydes up to C6)	30	50	70	✓	✓	✓
pH value (not ppm)	4.0 – 7.5	4.0 – 9.0	4.0 – 9.0	✓	✓	
<b>Chlorophenols</b> (PCP, TeCP, TrCP, DCP, MCP)	0.5	1	1.25	✓	✓	
<b>O-Phenyl phenol</b> (OPP)	10	100	200	✓	✓	
<b>Pesticides, sum parameter</b> All natural fibres (except shorn wool) Shorn wool	0.5 1	1.25 1.5	1.5 1.75	✓	✓	✓
<b>Extractable Heavy metals</b> Antimony (Sb), Arsenic (As), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Lead (Pb), Nickel (Ni), Mercury (Hg), Selenium (Se), Tin (Sn), Chromium VI (Ch-VI)	1	5	10	✓	✓	✓
<b>Total Heavy metals (in digested sample)</b> Cadmium (Cd) Lead (Pb)	< 40 < 50	< 40 < 90	< 40 < 90	✓	✓	✓
<b>Nickel release</b>	1	1.25	1.5	✓	✓	✓
<b>Organotin compounds:</b> (TBT, TphT, DBT, DOT, MBT, DMT, DPT, MoT,MMT, MPHT, TeBT, TCyHT, TMT, TOT, TPT, DphT, TeET)	0.5	1	1.25	✓	✓	
<b>Per- and Polyfluorinated compounds (PFC) individually:</b> PFOA, PFOS FTOH	0.1 0.5	0.1 1	0.5 1	✓	✓	
<b>Phthalates</b> Sum parameter (DINP, DMEP, DNOP, DEHP, DIDP, BBP, DBP, DIBP, DEP, DIHP, DHNUP, DCHP, DHxP, DIHxP, DPRP, DHP, DNP, DPP)	< 100	750	1000	✓	✓	✓
<b>Polycyclic Aromatic Hydrocarbons (PAH):</b> Sub parameter Chrysene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo(j)fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Benzo(e)pyrene, Dibenzo[a,h]anthracene, Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Indeno[1,2,3-cd]pyrene, Benzo[g,h,i]perylene	20 1	30 2	50 2.5	✓	✓	

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