

Avery Dennison Apparel Solutions Restricted Substance List (ADRSL V11)

AS Product Compliance Team
June 2023



Background



ADRSL V11 - effective 1st July, 2023

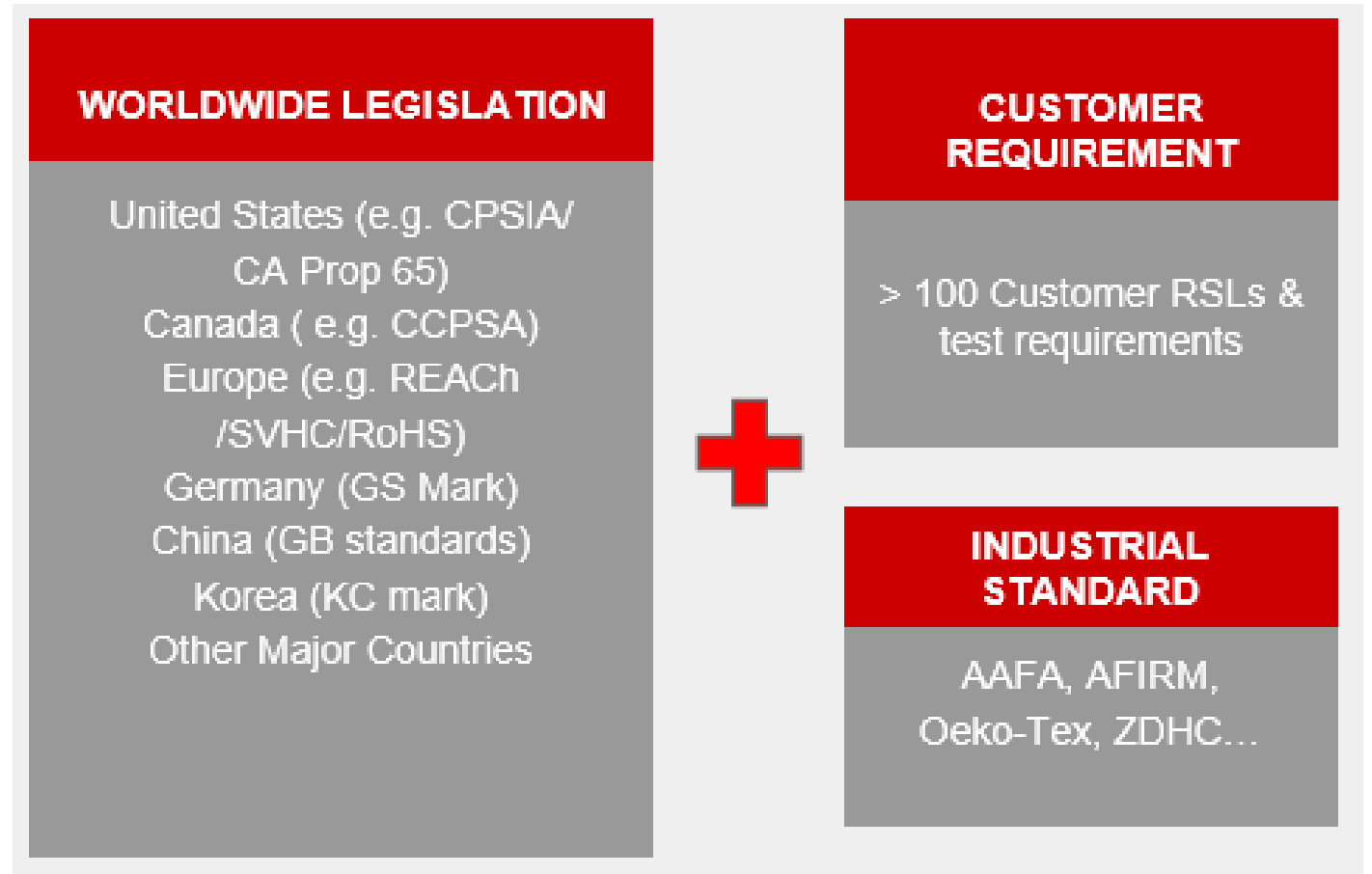
What is Restricted Substance List “ RSL “ ?

- It is a list of hazardous chemicals / substances with test methods and limits
- It helps to ensure our products are free from banned chemicals / substances
- The first Avery Dennison Restricted Substances List (ADRSL) was implemented globally in 2008

Where can I download the latest ADRSL?

- <http://www.myrbis.averydennison.com/RSL/>

How was the ADRSL developed?



What do AD Suppliers need to do?

- Review and understand the requirement under the latest ADRSL
- Have thorough knowledge of the chemicals used in the manufacturing process and maintain an updated chemical inventory list
- Ensuring the material or product supplied to AD does not contain substance listed in the ADRSL exceeding the allowable limit
- Signed the ADRSL agreement
- Notify AD immediately if a material or product supplied to AD cannot comply with ADRSL and/ or applicable legislation



ADRSL Content

1. Letter to Suppliers
2. Legal Compliance
3. Restricted Substances List and Limits
4. Implementation Guide
5. Frequently Asked Questions
6. Change Log



Restricted Substances List and Limits

Test Method

Category: Butylated Hydroxy Toluene (BHT)

PRSL Test Method	Solvent Extraction, GC-MSD Analysis		
Restricted Substance Name / Group	CAS #	PRSL Limit	MRSL Limit
Butylated Hydroxy Toluene (BHT)	128-17-0	Usage Ban in Packaging Material (1 mg/kg)	/

Substance Name

Unique numerical identifier assigned by the Chemical Abstracts Service (CAS)

Limit of restricted substance



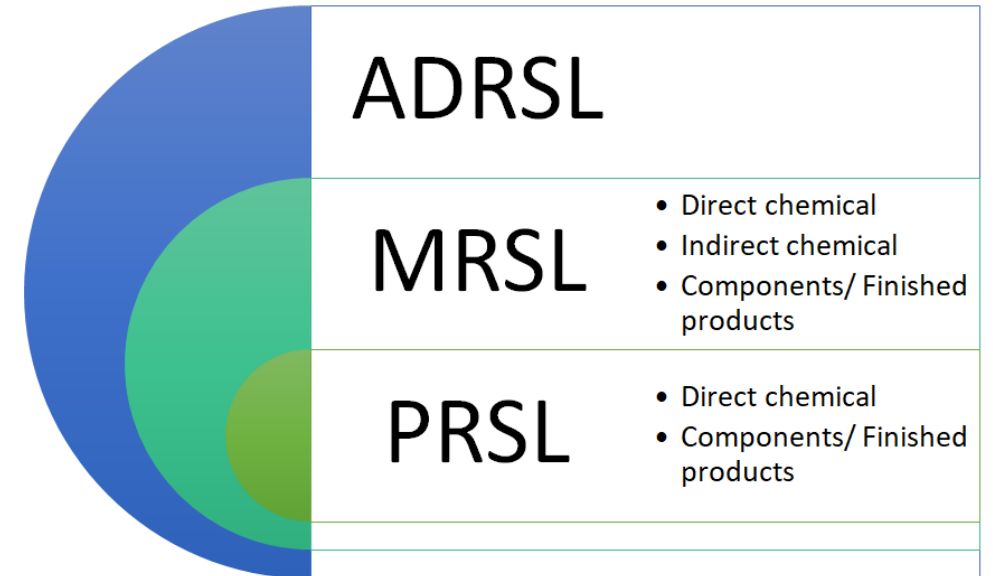
PRSL vs MRSL

- **Product restricted substances list (PRSL)**
 - applies to direct chemicals, components, semi-finished/ finished products, and packaging. PRSL limits do not apply to indirect chemicals.
- **Manufacturing restricted substances list (MRSL)**
 - applies to all chemical substances used within manufacturing facilities, including both direct and indirect chemicals.

Difference between direct and indirect chemical:

Direct chemical will become part of the finished good, while indirect chemicals may be used during the manufacturing process, but is not intended to remain with the finished product.







































- Example of direct chemicals: inks, adhesives, dyes, and colourants
- Example of indirect chemicals: cleaners, detergents, chemicals used for instrument maintenance, wastewater treatment, sanitation and pest control.



ZDHC Signatory Brands

Zero Discharge of Hazardous Chemicals

Roadmap to Zero Programme to help the fashion industry to eliminate harmful chemicals from its global supply chain.





Newly Added Restricted Substances

Chemical Group	Restricted Substance Name	CAS#	Limit
AZO DYES	4-Ethoxyaniline 2,5-Diaminotoluene 3,3-Diaminobenzidine	156-43-4 95-70-5 91-95-2	PRSL: Usage Ban (20 mg/kg)
DISPERSE, CARCINOGENIC, RESTRICTED DYES	Basic Green 4: Leucomalachite Green	129-73-7	PRSL: Usage Ban (15 mg/kg); MRSL: 250 mg/kg
	Basic Yellow 2 Solvent Yellow 34	2465-27-2 492-80-8	PRSL: Usage Ban (15 mg/kg);
MINERAL OILS IN PRINTING INKS FOR PACKAGING	MOAH	-	PRSL limit 1000 mg/kg; 3-7 rings : 1 mg/kg
	MOSH	-	PRSL limit 1000 mg/kg
SILOXANES	Octamethylcyclotetrasiloxane (D4) Decamethylcyclopentasiloxane (D5) Dodecamethylcyclohexasiloxane (D6)	556-67-2 541-02-6 540-97-6	PRSL limit 1000 mg/kg; MRSL limit 1000 mg/kg



Newly Added Restricted Substances (Con't)

Chemical Group	Restricted Substance Name	CAS#	Limit
PESTICIDE	Silafluofen	105024-66-6	PRSL: Usage Ban (0.5 mg/kg)
MISCELLANEOUS RESTRICTED SUBSTANCES	Sodium Tetrahydroborate	16940-66-2	PRSL: 100 mg/kg; MRSL: 1000 mg/kg
	Diazene-1,2-dicarboxamide (ADCA)	123-77-3	PRSL: 1000 mg/kg; MRSL: 1000 mg/kg
	Titanium Dioxide	13463-67-7	PRSL & MRSL: TiO ₂ Particles with Diameter ≤10 μm: Usage Ban (1 %)



Newly Added Restricted Substances (Con't)

Chemical Group	Restricted Substance Name	CAS#	Limit
PFCs / PFAS	Perfluorohexanesulfonic Acid, Potassium Salt (PFHxS-K)	3871-99-6	PRSL: Usage Ban (1 µg/m ² ; 0.01 mg/kg)
	Perfluorohexanesulfonic Acid, Lithium Salt (PFHxS-Li)	55120-77-9	
	Perfluorohexanesulfonic Acid, Ammonium Salt (PFHxS-NH ₄)	68259-08-5	
	Perfluorohexanesulfonic Acid, Sodium Salt (PFHxS-Na)	82382-12-5	
	N-Methylperfluoro-1-hexanesulfonamide (N-Me-FHxSA)	68259-15-4	
	Perfluorohexanesulfonamide (PFHxSA)	41997-13-1	
	1H,1H,2H,2H-Perfluorododecyl Iodide (10:2 FTI)	2043-54-1	
	1H,1H,2H,2H-Perfluorotetradecyl Iodide (12:2 FTI)	30046-31-2	
	1H,1H,2H,2H-Perfluorododecyl Methacrylate (10:2 FTMA)	2144-54-9	
	1H,1H,2H,2H-Perfluoro-1-tetradecanol (12:2 FTOH)	39239-77-5	
1H,1H,2H,2H-Perfluorododecane sulfonic Acid (10:2 FTS)	120226-60-0		
	Total Organic Fluorine	-	PRSL: 10 mg/kg



3M Reaches \$10.3 Billion Settlement in 'Forever Chemicals' Suits




The deal followed an agreement by Chemours, DuPont and Corteva to pay \$1.19 billion to help resolve claims that the chemical manufacturers contaminated drinking water across the country.

The company said the settlement would provide the funds over a 13-year period to cities, towns and other public water systems to test and treat contamination of per- and polyfluoroalkyl substances, or PFAS.

3M, which is facing thousands of lawsuits over PFAS contamination, did not admit liability, and said the money will help support remediation at public water systems that detect PFAS "at any level."



Existing Restricted Substances with PRSL Limit Change

	Chemical Group	Restricted Substance Name	CAS#	Changes made to Limit
	FLAME RETARDANT	Trimethyl Phosphate (TMP)	512-56-1	PRSL: 25 mg/kg → 5 mg/kg; MRSL: 250 mg/kg
	HEAVY METAL	Soluble Antimony (Sb)	7440-36-0	60 mg/kg → 30 mg/kg
	PESTICIDE	Dichlorophene	97-23-4	Usage Ban (1 mg/kg) → Usage Ban (0.5 mg/kg)



Existing Restricted Substances with New MRSL Limit

Chemical Group	Restricted Substance Name	CAS#	New MRSL Limit
AZO DYE	Aniline	62-53-3	500 mg/kg
DMFA	Dimethyl Formamide	68-12-2	1000 mg/kg
DMFU	Dimethyl Fumarate	624-49-7	10 mg/kg
FLAME RETARDANT	Tri-o-cresyl Phosphate (TOCP) Trixylyl Phosphate (TXP)	78-30-8 25155-23-1	250 mg/kg
GLYCOL	2-Methoxypropanol	1589-47-5	50 mg/kg
PHTHALATE	Diisohexyl Phthalate (DIHxP) n-Pentyl-iso-pentyl Phthalate (PiPP)	71850-09-4 776297-69-9	250 mg/kg
VOLATILE ORGANIC COMPOUNDS	N,N-Dimethylacetamide (DMAC) N-Ethyl-2-pyrrolidone (NEP)	127-19-5 2687-91-4	1000 mg/kg
MISCELLANEOUS RESTRICTED SUBSTANCES	Sodium Perborate	11138-47-9; 15120-21-5; 13517-20-9; 125022-34-6; 90568-23-3	1000 mg/kg
	Sodium Peroxometaborate	7632-04-4	1000 mg/kg



Existing Restricted Substances with New MRSL Limit (Con't)

Chemical Group	Restricted Substance Name	CAS#	New MRSL Limit
PFCs / PFAS	Didecyldimethyl Ammonium Perfluorooctane Sulfonate (PFOS-N(C ₁₀ H ₂₁) ₂ (CH ₃) ₂)	251099-16-8	2 mg/kg
	Perfluorohexanoic Acid (PFHxA)	307-24-4	0.025 mg/kg
	1H,1H,2H,2H-Perfluoro-1-hexanol (4:2 FTOH)	2043-47-2	1 mg/kg
	1H,1H,2H,2H-Perfluoro-1-octanol (6:2 FTOH)	647-42-7	
	1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1	
	2H,2H-Perfluorodecanoic Acid (H ₂ PFDA)	27854-31-5/ 882489-14-7	
	Perfluorobutanoic Acid (PFBA)	375-22-4	
	Perfluorodecanoic Acid (PFDA)	335-76-2	
	Perfluorobutanesulfonic Acid (PFBS)	29420-49-3/ 375-73-5/ 59933-66-3	
Perfluorodecanesulfonic Acid (PFDS)	126105-34-8/ 335-77-3		
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4		



Existing Restricted Substances with MRSL Limit Change



Chemical Group	Restricted Substance Name	CAS#	Changes made to MRSL Limit
APEO	Nonylphenol Ethoxylates (NPEOs), Octylphenol Ethoxylates (OPEOs)	-	500 mg/kg → 250 mg/kg
	Nonylphenol (NP), Octylphenol (OP)	-	250 mg/kg → 100 mg/kg
CHLORINATED ORGANIC CARRIER	Trichlorotoluenes, Tetrachlorotoluenes	-	5 mg/kg → 10 mg/kg
	Benzyl Chloride	100-44-7	Dye: 100 mg/kg; Others: 5 mg/kg → Dye: 100 mg/kg; Others: 50 mg/kg
CHLORINATED PHENOL	Pentachlorophenol (PCP)	87-86-5	20 mg/kg → 5 mg/kg
	Tetrachlorophenols (TeCP): 2,3,4,5-Tetrachlorophenol; 2,3,4,6-Tetrachlorophenol; 2,3,5,6-Tetrachlorophenol	25167-83-3; 4901-51-3; 58-90-2; 935-95-5	Sum 20 mg/kg → sum 15 mg/kg
FLAME RETARDANT	Short-chain Chlorinated Paraffins (SCCPs) (C10 to C13)	85535-84-8	50 mg/kg → 250 mg/kg
	Medium-chain Chlorinated Paraffins (MCCPs) (C14 to C17)	85535-85-9	500 mg/kg → 250 mg/kg
VOLATILE ORGANIC COMPOUNDS	N-Methyl-2-pyrrolidone (NMP)	872-50-4	Ink: Usage Ban → Ink: Usage Ban; Others: 1000 mg/kg
	Toluene	108-88-3	Ink: Usage Ban; Cleaning Agent: 5000 mg/kg → Ink: Usage Ban; Cleaning Agent: 5000 mg/kg; Others: 500 mg/kg

Test Matrix Update

- Pesticides test removed
- Added ZDHC MRSL test for chemical formulations:

“Chemical formulations such as cleaners, adhesives, paints, inks, detergents, dyes, colourants, auxiliaries, coatings and finishing agents should be assessed according to ZDHC MRSL requirements.”

	Non-packaging										Packaging
	A	B	C	D	E	F	G	H	I	J	K
Restricted Substances	Adhesive, HTL release	Ink, dyes, coating, foil	Leather (natural)	Leather (synthetic)	Metal	Paper	Plastic, silicone, heat seal backing	Textile (natural)	Textile (synthetic)	Textile (blend) *1	All material
Azo Dyes ^		•	•			•		•	•	•	•
APs, APEOs	•	•	•	•		•	•	•	•	•	•
BHT											•
Chlorinated Organic Carriers		•									
Chlorinated Phenol	•	•	•	•		•		•	•*2	•	•
Dimethyl Formamide		•*3		•			•*3				
Disperse Dyes, Carcinogenic Dyes and Other Restricted Dyes ^		•	•	•					•	•	
Formaldehyde	•	•	•	•		•		•	•	•	•
Total Heavy Metals ^	•	•	•	•	•	•	•				
Additional Total Heavy Metals ^	•	•									
Chromium VI			•								
Nickel Release					•*4						
Extractable Heavy Metals ^	•	•	•	•		•	•	•	•	•	•
Organotins	•	•	•	•		•	•	•	•	•	•
PFCs/ PFAS	•*5	•*5									•*5
Pesticides			•			•		•		•	•
pH			•	•				•	•	•	
Phthalates	•	•		•			•				•*6
PAHs ^	•	•		•			•				
SCCPs & MCCPs	•	•	•	•			•				
VOCs	•	•									
Heavy Metals in Packaging and Packaging Component (94/62/EC, TPCH)											•



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Thank you



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