PRIMARK®

PRIMARK'S RESTRICTED SUBSTANCES LIST 2024 V1.2

for Primark suppliers and their supply network

November 2024

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Introduction

This Restricted Substances List 2024 V1.2 (RSL) replaces all previous versions. Please note that changes to substances, limits and test methods compared with the previous version are highlighted in red.

As an international retailer, Primark is committed to reducing the environmental impact of our products at every stage of their life. We recognise the importance of reducing the environmental impact throughout the manufacturing process, and for that reason, we are committed to continuously improving our chemical management programme in line with evolving industry standards, product specifications and technological developments. Suppliers, manufacturers, and facilities must ensure the fabrics, materials, components, and products manufactured for Primark are both fit for purpose and meet the regulatory compliance requirements for the markets in which they are intended for sale and use.

Primark's RSL includes 2 restriction limits:

RSL
RSL stands for Restricted Substances List and is a list of hazardous chemicals that are restricted below a certain threshold in finished products.

MRSL
MRSL stands for Manufacturing Restricted Substances List and is a list of hazardous chemicals that shall be controlled in chemical formulation below a certain threshold

The RSL applies to all products supplied to Primark with reference to the processes necessary to produce them, including but not limited to raw materials e.g. fabrics and leather, trimmings, semi-finished, and finished goods typically used in the production of apparel, footwear, accessories, and jewellery, etc. There are further requirements on chemicals used in the manufacturing process which are laid down in the ZDHC MRSL Version 3.1.

In this document there is a column with limits of substances listed in ZDHC MRSL Version 3.1. Regarding applicability and test methods please refer to official documents published by ZDHC with reference to MRSL Version 3.1 (https://mrsl.roadmaptozero.com/).

Primark is committed to ZDHC and to the ZDHC MRSL. The transition period to implement Version 3.1 of the ZDHC MRSL ended on 31 October 2023. From 1 November 2023, applicable formulations must be conformant with the ZDHC MRSL V3.1.

Supplier Obligations

All suppliers and their supply chains are required to:

1) Comply with this RSL, in accordance with the Primark Terms and Conditions. This RSL includes restrictions for both finished products and formulations used during manufacturing of such products.
2) Comply with the Primark Chemical Management Guidance which contains detailed requirements applicable to Primark's suppliers supply chain and guidance on how this relates to the ZDHC.

All suppliers are required to:

Action	**SUPPLIERS** **This document comes into immediate effect**
1.	Communicate Primark's RSL to all facilities involved in every stage of the Supplier's supply chain
2.	Ensure the supplier's entire supply network is conforming to the RSL by requesting evidence of compliance with the action points (3-7) below from its suppliers and facilities.
	ALL OF SUPPLIER'S FACILITIES **This document comes into immediate effect**
3.	Communicate Primark's RSL 2024 V1.2 to chemical formulators and obtain conformance statements
4.	Check the chemicals supplied by the supplier's chemical formulators are listed on the ZDHC Gateway
5.	Update chemical inventory list (CIL) and share with the Primark Environmental Manager in its country
	CHEMICAL FORMULATORS **This document comes into immediate effect**
6.	Check conformance statements meet the RSL requirements
7.	Upload/update the supplier's products on the ZDHC Gateway- Chemical Module and ensure that these are certified to ZDHC MRSL V3.1.

References and Links

AFIRM (Link for the AFIRM website in general https://www.afirm-group.com/)
The Apparel and Footwear International RSL Management (AFIRM) Group is a membership organization of apparel and footwear companies collaborating to promote chemicals management in the global supply chain. This RSL cover requirements reported in the AFIRM RSL according to last updated version at the time of publication of this documents.

Chemical information sheets in various languages can be found in the link below. These sheets are designed for manufacturers to find safer alternatives to traditional chemicals.
https://www.afirm-group.com/chemical-information-sheets/

ZDHC MRSL (Link for the ZDHC website in general https://mrsl.roadmaptozero.com/)
The ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) is a list of chemical substances banned from intentional use in the processing of textile materials, leather, rubber, foam, adhesives and trims used in textiles, apparel, and footwear industry. Intentional use means the substance used deliberately in a chemical product to achieve a desired look or functionality.

The ZDHC MRSL goes beyond the traditional approaches to chemical restrictions. The MRSL approach also helps protect workers, local communities, and the environment from the possible impacts of harmful chemicals.

Chemical formulations covered by restrictions in the ZDHC MRSL include, but are not limited to, cleaners, adhesives, paints, inks, detergents, dyes, colourants, auxiliaries, coatings and finishing agents used during raw material production, wet processing, process machinery maintenance, wastewater treatment, sanitation, and pest control. ZDHC MRSL limits apply to substances in commercially available formulations, not those from earlier stages of chemical synthesis.

Scope

Chemicals and substances used in various products are restricted within the markets which we serve. This RSL applies to all products produced for Primark.

For product specific chemical requirements in areas such as toys, electrical items please refer to the Primark Chemical testing manual.

For cosmetics and other formulated products please refer to the Primark Health and Beauty Compliance Manual.

Primark have adopted the AFIRM packaging RSL. The requirements in this document apply to all packaging materials used for Primark products. A copy of the AFIRM Packaging RSL can be found alongside this document.

The following materials are covered in this RSL:

- Natural fibres
- Synthetic fibres
- Natural & Synthetic blends
- Natural Leather
- Artificial Leather (including Polyurethane (PU) and Silicone, accessories applications, and upholstery)
- Recycled Natural fibres
- Recycled Synthetic fibres
- Glass
- Wood
- Metal
- Feathers and Down
- Plastics and polymers (including foams, Polyurethane (PU) & Silicone, Latex, polyolefins, and more)
- Coatings and Prints
- Glues/adhesives

The requirements reported in the RSL must be followed as appropriate to those products.

Legislation and Regulations

The RSL testing matrix below highlights the main substances that are restricted by legislation. The table shall not be regarded as being exhaustive and suppliers are expected to ensure that they are following the latest applicable legislation and regulations in force. Where relevant, this RSL has been informed by international standards, such as the Minamata Convention on Mercury and the Stockholm Convention on Persistent Organic Pollutants.

It is the supplier's responsibility to ensure that all products and materials conform with all applicable legislation including, without limitation, European REACH and UK REACH.

REACH SVHC & Restrictions (EU, UK)

As a European Regulation REACH applies directly to all 28 Member States of the European Union. It also applies to Iceland, Liechtenstein, and Norway as member countries of the European Economic Area. All suppliers shall adhere to the REACH guidelines and legislation as issued by the European Chemicals Agency ECHA. Details can be found on the following link:
https://echa.europa.eu/regulations/reach/understanding-reach

All suppliers shall ensure that all products do not contain any substances contained within the latest list of substances of very high concern (SVHC). Should a product contain an SVHC please contact your Primark product technologist and work with your supply chain to substitute with an alternative.
https://echa.europa.eu/candidate-list-table

Please note that the SVHC listing is updated twice a year with additional substances, it is the supplier's responsibility to ensure any restricted substances meet the relevant legislation before shipping into the EU.

There are also restricted substances under the scope of REACH, whilst some of these will be listed within the Restricted Substances listing, it is the supplier's responsibility to ensure that materials supplied are in compliance with the restrictions that may apply to their products. Link to the restricted substances - Substances restricted under REACH – ECHA (europa.eu)

EU REACH no longer applies to England, Scotland, or Wales, and instead the UK Government have implemented their own version – UK REACH. with UK REACH. Companies in Northern Ireland will still be covered by EU REACH according to the 'IE/NI Protocol'.

- UK REACH https://www.hse.gov.uk/reach/index.htm
- UK REACH substances of very high concern (SVHCs) https://www.hse.gov.uk/reach/svhc.htm
- UK REACH Annex 14 Authorization List https://www.hse.gov.uk/reach/authorisation-list.htm

France Agec Law

COMMUNICATION OF THE PRESENCE OF CERTAIN ENDOCRINE DISRUPTORS - implementation of article L. 5232-5 of the French Public Health Code as amended by the AGEC LAW:

The French law AGEC 2020-105 on the fight against waste and the circular economy contained several requirements mainly relating to sustainability and the environment. We refer to article L. 5232-5 of the French Public Health Code as amended by article 13 of AGEC law 2021-105. This recently implemented requirement covers communicating to consumers via electronic means the presence of certain endocrine disruptors, if greater than 0.1%.

In general, the scope of this requirement generally includes: all consumer products (substances, mixtures and articles, unless otherwise specified), food products (excluding medicinal products). The application date of the reporting obligations is 12 April 2024. Following the publication of three enforcement orders in October 2023, lists of endocrine disruptors were introduced. These lists contain various substances, most of which are already listed as SVHCs in the ECHA Candidate List. Furthermore, the following two substances are not SVHC:

- Mancozeb - CAS: 8018-01-7 (Listed in Annex I, Table A (List of substances with proven and presumed endocrine disrupting properties, mentioned in Article I of Article L. 5232-5 of the Public Health Code) of the ordinance of September 28, 2023 which establishes the list of substances that present endocrine interference properties referred to in Article I and II of Article L. 5232-5 of the Public Health Code and the categories of products that present a particular exposure risk referred to in Article II of Article L. 5232-5 of the Public Health Code).
- Cholecalciferol (or vitamin D3) - CAS: 67-97-0 (listed in Annex I, table A bis (List of substances with proven and presumed endocrine disrupting properties, mentioned in I of article L. 5232-5 of Public Health Code and subject to health recommendations due to their nutritional nature (vitamins, minerals) and their health benefits according to the precautions for use) of the ordinance of 28 September 2023 which establishes the list of substances having properties of endocrine interference referred to in Article I and II of Article L. 5232-5 of the Public Health Code and the categories of products presenting a particular risk of exposure referred to in II of Article L. 5232-5 of the Public Health Code public health).

Furthermore, according to the France Agec Law, the following substances must also be notified:

I. Diisooctyl phthalate (DIOP) - CAS: 27554-26-3
II. Resorcin - CAS: 108-46-3

Primark requires that no materials provided to Primark contain the substances listed here at concentrations above 0.1%.

Various US Legislation on Per- and Polyfluorinated Alkyl Substances (PFAS)

Considering that many US State are prohibiting PFAS in consumer product it is requested to not use intentionally added PFAS.

Chemicals of High Concern to Children (CHCC) for Various State Requirements

Department of Ecology (**DOE**) has established a list of priority chemicals that are of high concern for children. The DOE require manufacturers to notify the DOE when these Chemicals of High Concern to Children were present in children's products. Reporting requirements are based on type of product and category of manufacturer. Report is required if any of these chemicals are intentionally added above practical quantitation limit (PQL) or are present as contaminants above 100 ppm (mg/kg). In Appendix 1 there are links to these lists.

New York Ban of certain substances in products intended for children Toxic Chemicals in Children's Products

Title IX of Article 37 of the Environmental Conservation Law (ECL), Toxic Chemicals in Children's Products (TCCP), addresses chemicals in consumer products primarily intended for children aged twelve and under. ECL 37-0905 requires DEC to promulgate a list of Chemicals of Concern (COC) and authorizes DEC to add to the list of High Priority Chemicals (HPC). Once promulgated in a rulemaking, these lists will set forth the chemicals that must be disclosed if present in children's products sold or distributed in New York State. The law also prohibits the sale of children's products containing intentionally added benzene, asbestos, or tris(1,3-dichloro-2-propyl) phosphate. The sales prohibition went into effect January 1, 2023.

The Department of Environmental Conservation is in the process of developing a rule to implement portions of the law. The rule is expected to address the specific product categories that are covered, what chemicals and supporting information must be disclosed, thresholds for reporting, provide details on how to obtain a

waiver from reporting or the sales prohibition, and the fees associated with reporting and applying for a waiver.

California Proposition 65

In the United States, all materials must comply with national laws and federal regulations. Among other state-specific requirements, note that California has a law called Proposition 65. Proposition 65 requires businesses to notify Californians of significant quantities of chemicals in the products they purchase, in their homes, or in their places of consumption, work, or that are released into the environment. The chemical substances to be notified are those present in the list published by the competent authority (this list contains more than 1000 substances known to be carcinogenic or harmful to reproduction). Substances on the California Proposition 65 list shall not be used in the production of the items supplied. Each component of the product must not contain substances in concentrations that would require notification of the presence of such substance (as specified by law) to the citizens of California (for example through labelling).
List of substances covered by California Proposition 65: https://oehha.ca.gov/proposition-65/proposition-65-list

Hexavalent chromium [Cr(VI)] is among the chemicals known to the State to cause cancer, pursuant to Proposition 65 and it can be a substance not intentionally added/declared in the production process because Cr(VI) can naturally occur from the transformation of Cr(III) under certain conditions such as exposure to UV light, high temperatures, low humidity, high pH-values, or exposure to oxidizing agents during manufacturing processes, transportation, storage, etc. This means that in chrome-tanned leather where Cr(III) is added to the hides/skins, may contain/exposure consumers to Cr(VI) and this means that chromium tanned leather products requires California Prop. 65 warning. Alternatively, to eliminate or minimize the presence and potential formation of hexavalent chromium you must ask to your supplier to declare that the leather is produced pursuant to the Reformulation Protocol by a Certified Tannery. More information on this protocol are available at the following website:
https://www.prop65hexchromesettlement.com/__static/9f4997cb67f0204753b0c4d03fa7b380/amended-consent-judgment-reform-11-plus-exh-b-d.pdf?dl=1

Furthermore, in California the “California's Safer Consumer Product Regulation” came into force (October 1, 2013). The DTSC (Department of Toxic Substances Control) has published a list of candidate chemicals. These substances must not be used in the production of the items supplied (and must not be present as contaminants above the PQL practical quantification limit).

Primark RSL Testing Matrix

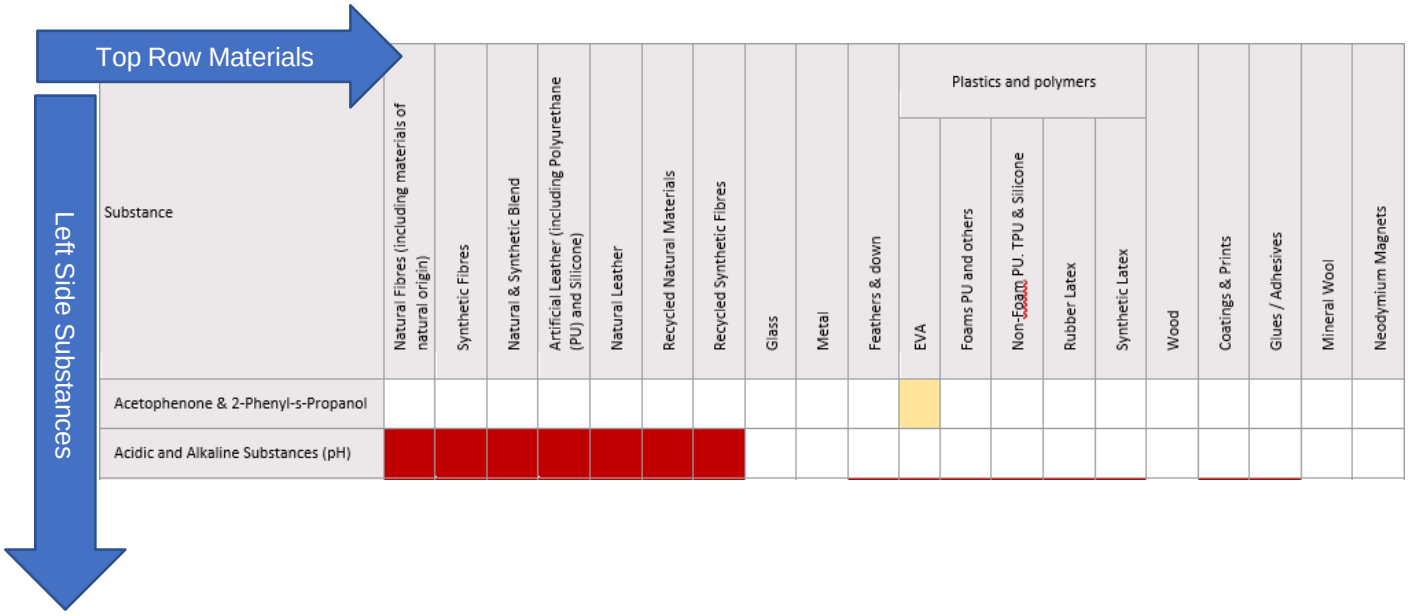
The following tables are listings of materials specified within the scope of the document and the substances from the Restricted substance listings. Each material is assessed for its risk within each substance, risk is calculated on the following basis.

	High Risk	There is a high likelihood of the substance being present within this material.
	Moderate Risk	There is a moderate chance of the substance being present within this material.
	Lowest Risk	There is a low risk of the substance being present within this material.

Our expectations for the above ratings are as follows.

- High: Testing required.
- Moderate: Testing recommended and may be required at brand discretion.
- Low: Testing not required unless specifically dictated

On the left side of the testing matrix are referring to the chemicals & substances. The top row refers to materials / products related to Primark.



Substance	Natural Fibres (including materials of natural origin)	Synthetic Fibres	Natural & Synthetic Blend	Artificial Leather (including Polyurethane (PU) and Silicone)	Natural Leather	Recycled Natural Materials	Recycled Synthetic Fibres	Glass	Metal	Feathers & down	Plastics and polymers					Wood	Coatings & Prints	Glues / Adhesives	Mineral Wool	Neodymium Magnets
											EVA	Foams PU and others	Non-Foam PU, TPU & Silicone	Rubber Latex	Synthetic Latex					
Acetophenone & 2-Phenyl-s-Propanol																				
Acidic and Alkaline Substances (pH)																				

Please note that substances which are only listed in the MRSL of ZDHC and are not commonly found in this RSL haven't been reported in the matrix. For the applicability of these substances please refer to ZDHC MRSL Version 3.1.

Substance	Natural Fibres (including materials of natural origin)	Synthetic Fibres	Natural & Synthetic Blend	Artificial Leather (including PU and Silicone	Natural Leather	Recycled Natural Materials	Recycled Synthetic Fibres	Glass	Metal	Feathers & down	Plastics and polymers					Wood	Coatings & Prints	Glues / Adhesives
											EVA	Foams PU and other	Non-Foam PU. TPU & Silicone	Rubber Latex	Synthetic Latex			
Acetophenone & 2-Phenyl-s-Propanol																		
Acidic and Alkaline Substances (pH)																		
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs) all isomers																		
Azo-amines and Aryl Amine salts																		
Bisphenols																		
Chlorinated Paraffins																		
Chlorophenols																		
Chlororganic Carriers																		
Dimethylfumarate (DMFu)																		
Dyes (forbidden and Disperse)																		
Dyes, Navy Blue																		
Flame Retardants																		

Substance	Natural Fibres (including materials of	Synthetic Fibres	Natural & Synthetic Blend	Artificial Leather (including PU and Silicone	Natural Leather	Recycled Natural Materials	Recycled Synthetic Fibres	Glass	Metal	Feathers & down	Plastics and polymers					Wood	Coatings & Prints	Glues / Adhesives
											EVA	Foams PU and others	Non-Foam PU. TPU & Silicone	Rubber Latex	Synthet ic Latex			
Fluorinated Green House Gases (*Production related*)																		
Formaldehyde																		
Isocyanates																		
Heavy metals, Chromium VI																		
Heavy metals, Extractable																	Jewelry	
Heavy metals, Nickel Release																		
Heavy metals, Total																		
Monomers, Acrylamides, Styrene and Vinyl Chloride		PVC																
N-nitrosamines																		
Organotin compounds																		
Ortho-phenylphenol (OPP)																		
Ozone depleting Chemicals																		

Substance	Natural Fibres (including materials of natural origin)	Synthetic Fibres	Natural & Synthetic Blend	Artificial Leather (including PU and Silicone	Natural Leather	Recycled Natural Materials	Recycled Synthetic Fibres	Glass	Metal	Feathers & down	Plastics and polymers					Wood	Coatings & Prints	Glues / Adhesives
											EVA	Foams PU and others	Non-Foam PU. TPU & Silicone	Rubber Latex	Synthetic Latex			
Pesticides Agricultural																		
Phthalates																		
Polycyclic Aromatic Hydrocarbons (PAH)																		
Polymers (PVC)				PVC														
Perfluorinated and Polyfluorinated chemicals (PFCs or PFAS) *																		
Quinoline																		
Solvents, Residual DMFa																		
Silicons																		
Pentachlorothiophenol (PCTP)																		
Solvents, Residual DMAC and NMP																		
Solvents, Residual Formamide																		
UV Absorbers / Stabilizers																		
Volatile Organic Compounds (VOCs)																		

*If PFAS contamination is suspect

Acetophenone and 2-Phenyl-2-Propanol						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
98-86-2	Acetophenone	50 ppm each	N/A	Potential breakdown products in EVA foam when using certain cross-linking agents, including Dicumyl Peroxide.	Extraction in acetone or methanol	25 ppm each
617-94-7	2-Phenyl-2-Propanol					
May be found in Ethylene-vinyl-acetate (EVA) foams produced with Dicumyl peroxide as a crosslinking initiator and in Fragrances, solvents, and cleaners.						

Acidic and Alkaline Substances (pH)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
N/A	pH Value	Textiles: 4.0–7.5 Leather: Chrome-tanned: 3.2–5.5 Other: 3.5 – 7.0	N/A	pH value is a characteristic number, ranging from pH 0 to pH 14, which indirectly shows the content of acidic or alkaline substances in a product. Recommendation: comply with global regulations to minimize the chances of Chromium VI formation during tanning and processing of leather.	Textiles and Artificial Leather: EN ISO 3071:2020 Leather: EN ISO 4045:2018	N/A
pH values less than 7 indicate sources of acidic substances, and values greater than 7 indicate sources of alkaline substances. To avoid irritation or chemical burns to the skin, the pH value of products must be in the range of human skin— approximately pH 5.5.						

Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs) all isomers (Appendix D)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
various	Nonylphenol (NP), mixed isomers	Total Aps: 10 ppm Total Aps + APEOs: 100 ppm	OP and NP: 100 ppm	APEOs can be used as or found in detergents, scouring agents, spinning oils, wetting agents, softeners, emulsifying /dispersing agents for dyes and prints, impregnating agents, de-gumming for silk production, dyes and pigment preparations, polyester padding, and	Textiles and Leather: EN ISO 21084:2019 Polymers and all other materials: 1 g sample/20 mL THF, sonication for 60 minutes at 70° C, analysis according to EN ISO 21084:2019	Total of NP + OP: 3 ppm
various	Octylphenol (OP), mixed isomers					
Continue…▼						Total of NPEOs + OPEOs: 20 ppm

various	Nonylphenol ethoxylates (NPEOs)		NPEO and OPEO: 250 ppm	down /feather fillings. Recycled products: Contact your brand customer for information about potential exemptions from the limit on NPEOs in recycled textile products.	All materials except Leather: EN ISO 18254-1:2016 with determination of APEO using LC/MS or LC/MS/MS Leather: Sample prep and analysis using EN ISO 18218-1:2023 with quantification according to EN ISO 18254-1:2016	
various	Octylphenol ethoxylates (OPEOs)					

Aps are used as intermediaries in the manufacture of APEOs and antioxidants used to protect or stabilize polymers. Biodegradation of APEOs into Aps is the main source of Aps in the environment. Some Aps are very toxic to aquatic life with long lasting effects. Some Aps are suspected of damaging human fertility and unborn children.
APEOs and formulations containing APEOs are prohibited from use throughout supply chain and manufacturing processes.
We acknowledge that residual or trace concentrations of APEOs may still be found at levels exceeding 100 ppm and that more time is necessary for the supply chain to phase them out completely.

Azo-amine and Arylamine Salts

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
92-67-1	4-Aminobiphenyl				All materials except Leather: EN ISO 14362-1:2017 Leather: EN ISO 17234-1:2020 p-Aminoazobenzene: All materials except Leather: EN ISO 14362-3:2017 Leather: EN ISO 17234-2:2011	
92-87-5	Benzidine					
95-69-2	4-Chloro-o-toluidine			Azo dyes and pigments are		
				colorants that incorporate		
91-59-8	2-Naphthylamine			one or several azo groups (-N=N-) bound with aromatic		
				compounds		
97-56-3	o-Aminoazotoluene					
				Thousands of azo dyes exist,		
99-55-8	2-Amino-4-nitrotoluene	20 ppm each	150 mg/kg each	but only those which degrade to form the listed		5 ppm each
106-47-8	p-Chloraniline			cleaved amines are		
				restricted.		
615-05-4	2,4-Diaminoanisole					
				Azo dyes that release these		
101-77-9	4,4'-Diaminodiphenylmethane			amines are regulated and should no longer be used		
				for dyeing textiles.		
91-94-1	3,3'-Dichlorobenzidine					
119-90-4	3,3'-Dimethoxybenzidine					
Continue...▼						

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
119-93-7	3,3'-Dimethylbenzidine	20 ppm each	150 mg/kg each; Aniline Indigo 2000 mg/kg, other dye 500 mg/kg	Azo dyes and pigments are colorants 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 cleaved amines are restricted. Azo dyes that release these amines are regulated and should no longer be used for dyeing textiles.	All materials except Leather: EN ISO 14362-1:2017 Leather: EN ISO 17234-1:2020 p-Aminoazobenzene: All materials except Leather: EN ISO 14362-3:2017 Leather: EN ISO 17234-2:2011	
838-88-0	3,3'-dimethyl-4,4'-diaminodiphenylmethane					
120-71-8	p-Cresidine					
101-14-4	4,4'-Methylen-bis(2-chloraniline)					
101-80-4	4,4'-Oxydianiline					
139-65-1	4,4'-Thiodianiline					
95-53-4	o-Toluidine					
95-80-7	2,4-Toluenediamine					
137-17-7	2,4,5-Trimethylaniline					
95-68-1	2,4 Xylidine					
87-62-7	2,6 Xylidine					
90-04-0	2-Methoxyaniline (= o-Anisidine)					
60-09-3	p-Aminoazobenzene					
3165-93-3	4-Chloro-o-toluidinium chloride					
553-00-4	2-Naphthylammoniumacetate					
39156-41-7	4-Methoxy-m-phenylene diammonium sulphate					
137-17-7	2,4, 5-Thrimethylaniline					
21436-97-5	2,4,5-Trimethylaniline hydrochloride					
62-53-3	Aniline					
Bisphenols						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
80-05-7	Bisphenol-A (BPA)	1 ppm Limit is applicable to items intended to come in contact with the mouth, others 1000 ppm	100 mg/kg	BPA may be used in the production of epoxy resins, polycarbonate plastics, flame retardants, and PVC. BPS may be used as a substitute for BPA and can be found along with BPF in polyamide dye-fixing agents and sulfone- and phenol-	Extraction: 1 g sample/20 ml THF, sonication for 60 minutes at 60°C, analysis with LC/MS	0.1 ppm for individual samples 1 ppm for composite samples Leather: 10 ppm
80-09-1	Bisphenol S (BPS)	1000 ppm	1000 ppm each (*)			1 ppm Leather: 10 ppm
Continue...▼						

77-40-7	Bisphenol B (BPB)	BPA and other listed bisphenols should be substituted in all applicable materials.		based leather tanning agents. BPA and BPS can be found in recycled polymeric and paper materials due to polycarbonate plastic and thermal receipt paper made with bisphenols entering waste streams.		
620-92-8	Bisphenol F (BPF)					
1478-61-1	Bisphenol AF (BPAF)					
BPA is an endocrine disrupter, associated with risks that may include metabolic changes, cardiovascular diseases, impact to reproductive systems, and others. ▪ At the manufacturing level, human exposure can result from inhalation or contact to the skin.						
Recommends testing relevant materials for bisphenols according to the Testing Matrix and to begin working with suppliers to replace bisphenols with suitable alternatives in all products.						
(*)Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						
Chlorinated Paraffins						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
85535-84-8	Short-chain Chlorinated Paraffins (SCCPs) (C10-C13)	1000 ppm	250 mg/kg	May be used as softeners, flame retardants, or fat-liquoring agents in leather production; also, as a plasticizer in polymer production.	Leather: ISO 18219-1:2021 (SCCP) ISO 18219-2:2021 (MCCP) Textiles and all other materials: ISO 22818:2021 (SCCP + MCCP)	100 ppm
85535-85-9	Medium-chain Chlorinated Paraffins (MCCPs) (C14-C17)					
Chlorophenols						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
15950-66-0	2,3,4-Trichlorophenol (TriCP)	0.5 ppm each	Sum (1) = 50 mg/kg	May be used as flame retardants, preservatives, and fungicides	All materials: EN 17134-2:2023	0.5 ppm
933-78-8	2,3,5-Trichlorophenol (TriCP)					
933-75-5	2,3,6-Trichlorophenol (TriCP)					
95-95-4	2,4,5-Trichlorophenol (TriCP)					
88-06-2	2,4,6-Trichlorophenol (TriCP)					
609-19-8	3,4,5-Trichlorophenol (TriCP)					
4901-51-3	2,3,4,5-Tetrachlorophenol (TeCP)		Sum (2) = 15 mg/kg			
58-90-2	2,3,4,6-Tetrachlorophenol (TeCP)					
935-95-5	2,3,5,6-Tetrachlorophenol (TeCP)					
87-86-5	Pentachlorophenol (PCP)		5 mg/kg			
Continue..▼						

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
95-57-8	2-Chlorophenol	N/A	Sum(1) = 50 mg/kg	May be used as flame retardants, preservatives, and fungicides	All materials: EN 17134-2:2023	0.5 ppm
108-43-0	3-Chlorophenol					
106-48-9	4-Chlorophenol					
576-24-9	2,3-Dichlorophenol					
120-83-2	2,4-Dichlorophenol					
583-78-8	2,5-Dichlorophenol					
87-65-0	2,6-Dichlorophenol					
95-77-2	3,4-Dichlorophenol					
591-35-5	3,5-Dichlorophenol					
95-95-4	2,4,5-Trichlorophenol					
Pentachlorophenol (PCP), Tetrachlorophenol (TeCP), and Trichlorophenols (TriCP) are sometimes used to prevent mold and kill insects when growing cotton and when storing/transporting fabrics. PCP, TeCP, and TriCP can also be used as in-can preservatives in print pastes and other chemical mixtures. Only biocides that contain active substances that are approved under Regulation (EC) No 528/2012 of the European Parliament and the Council are permitted for use.						

Chlororganic Carriers (Chlorinated Benzenes and Toluenes)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
95-49-8	2-Chlorotoluene	1 ppm Total	Sum = 200 mg/kg Tetrachlorotoluene and Trichlorotoluene 10 mg/kg each. Note: Additional substances have been added compared to the list of ZDHC MRSL V3.1. Anyway in the ZDHC MRSL the list isn't exhaustive.	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. Cross-contamination from anti-moth agents and poly shipping bags may cause failures. .	All materials EN 17137:2018	0.2 ppm each
108-41-8	3-Chlorotoluene					
106-43-4	4-Chlorotoluene					
32768-54-0	2,3-Dichlorotoluene					
95-73-8	2,4-Dichlorotoluene					
19398-61-9	2,5-Dichlorotoluene					
118-69-4	2,6-Dichlorotoluene					
95-75-0	3,4-Dichlorotoluene					
25186-47-4	3,5-Dichlorotoluene					
7359-72-0	2,3,4-Trichlorotoluene					
2077-46-5	2,3,6-Trichlorotoluene					
6639-30-1	2,4,5-Trichlorotoluene					
76057-12-0	2,3,4,5-Tetrachlorotoluene					
6639-30-1	2,4,5-Trichlorotoluene					
23749-65-7	2,4,6-Trichlorotoluene					
21472-86-6	1,2,3-Trichloro-5-methylbenzene					
1006-32-2	2,3,4,5-Tetrachlorotoluene					
875-40-1	2,3,4,6-Tetrachlorotoluene					
1006-31-1	2,3,5,6-Tetrachlorotoluene					
108-90-7	Chlorobenzene					
877-11-2	Penta chlorotoluene					
541-73-1	1,3-Dichlorobenzene					
106-46-7	1,4-Dichlorobenzene					
87-61-6	1,2,3-Trichlorobenzene					
120-82-1	1,2,4-Trichlorobenzene					
108-70-3	1,3,5-Trichlorobenzene					
634-66-2	1,2,3,4-Tetrachlorobenzene					
Continue...▼						

634-90-2	1,2,3,5-Tetrachlorobenzene					
95-94-3	1,2,4,5-Tetrachlorobenzene					
608-93-5	Pentachlorobenzene					
118-74-1	Hexachlorobenzene					
5216-25-1	p-Chlorobenzotrichloride					
98-07-7	Benzotrichloride					
95-50-1	1,2-Dichlorobenzene	10 ppm	500 mg/kg			
100-44-7	Benzyl Chloride	1000 ppm	50 mg/kg and 100 mg/kg for dyes			

Dimethyl Fumarate (DMFu)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
624-49-7	Dimethylfumarate (DMFu)	0.1 ppm	10 mg/kg	DMFu is an anti-mold agent that may be used in sachets in packaging to prevent the buildup of mold, especially during shipping.	All materials: ISO 16186:2021	0.05 ppm

DMFu is an anti-mold agent that may be used in sachets in packaging to prevent the buildup of mold, especially during shipping.
DMFu is often placed in pads or desiccant sachets which is placed in the product or its packaging. It will evaporate over time and impregnate the leather, protecting it from mold which can cause the leather to deteriorate. It can also be applied directly to the surface of the product.
Only biocides that contain active substances that are approved under Regulation (EC) No 528/2012 of the European Parliament and the Council are permitted for use.

Dyes (Forbidden and Disperse)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
2475-45-8	C.I. Disperse Blue 1	30 ppm each	250 mg/kg	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).	All materials: DIN 54231:2022	15 ppm
2475-46-9	C.I. Disperse Blue 3					
3179-90-6	C.I. Disperse Blue 7					
3860-63-7	C.I. Disperse Blue 26					
56524-77-7	C.I. Disperse Blue 35A					
56524-76-6	C.I. Disperse Blue 35B		250 mg/kg (*)			
12222-97-8	C.I. Disperse Blue 102		250 mg/kg			
Continue…▼						

12223-01-7	C.I. Disperse Blue 106	30 ppm each	250 mg/kg	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).	All materials: DIN 54231:2022	15 ppm
61951-51-7	C.I. Disperse Blue 124					
23355-64-8	C.I. Disperse Brown 1					
2581-69-3	C.I. Disperse Orange 1					
730-40-5	C.I. Disperse Orange 3					
82-28-0	C.I. Disperse Orange 11					
12223-33-5	C.I. Disperse Orange 37/76/59		250 mg/kg			
13301-61-6						
51811-42-8	C. I. Disperse Orange 76		250 mg/kg			
85136-74-9	C.I. Disperse Orange 149		250 mg/kg (*)			
2872-52-8	C.I. Disperse Red 1		250 mg/kg			
2872-48-2	C.I. Disperse Red 11					
3179-89-3	C.I. Disperse Red 17					
61968-47-6	C.I. Disperse Red 151		250 mg/kg (*)			
119-15-3	C.I. Disperse Yellow 1		250 mg/kg			
2832-40-8	C.I. Disperse Yellow 3					
6300-37-4	C.I. Disperse Yellow 7		250 mg/kg (*)			
6373-73-5	C.I. Disperse Yellow 9		250 mg/kg			
6250-23-3	C.I. Disperse Yellow 23		250 mg/kg (*)			
12236-29-2	C.I. Disperse Yellow 39		250 mg/kg			
169409-3	C.I. Acid Violet 49					
54824-37-2	C.I. Disperse Yellow 49					
54077-16-6	C.I. Disperse Yellow 56		250 mg/kg (*)			
3761-53-3	C.I. Acid Red 26		250 mg/kg			
569-61-9	C.I. Basic Red 9					
569-64-2	C.I. Basic Green 4					
129-73-7						
2437-29-8						
10309-95-2						

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2580-56-5	C.I. Basic Blue 26	30 ppm each	250 mg/kg	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).	All materials: DIN 54231:2022	15 ppm
1937-37-7	C.I. Direct Black 38					
2602-46-2	C.I. Direct Blue 6					
573-58-0	C.I. Direct Red 28					
16071-86-6	C.I. Direct Brown 95		250 mg/kg (*)			
60-11-7	4-Dimethylaminoazobenzene (Solvent Yellow 2)					
6786-83-0	C.I. Solvent Blue 4					
561-41-1	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol					
548-62-9	C.I. Basic Violet 3		250 mg/kg (*)			
632-99-5	C.I. Basic Violet 14		250 mg/kg (*)			
(*) Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						

Dye – Blue Colorant						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
118685-33-9	Navy Blue: Component 1: C39H23ClCrN7O12S.2Na	30ppm each	1000 ppm (*)	Navy blue colorants are regulated and prohibited from use for dyeing textiles. Index 611-070-00-2	All materials: DIN 54231:2022	15 ppm
Not allocated	Navy Blue: Component 2: C46H30CrN10O20S2.3Na					
Dyes in this class are widely used in a variety of fibre and material types. Acid dyes are water-soluble anionic dyes mainly used on fibres such as wool, silk, and nylon.						
(*) Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						
Basic dyes are water-soluble cationic dyes mainly used on acrylic fibres. Direct dyes are used on natural fibres such as cotton, linen, cellulose and in special treatments such as dip dyes. Solvent dyes are dyes which are soluble in organic solvents and can be used on natural and synthetic fibres. Navy Blue Dye is a specific dye mixture used to dye leather and textiles.						

Flame Retardants						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
1309-64-4	Antimony trioxide	1000 ppm	N/A	Component of flame retardant treatment for polymers; opaciying agent for glasses, ceramics, and enamels; specialty pigments. Possible residuals in polyester yarn.	Internal method to detect Antimony	1.0 ppm
84852-53-9	Decabromodiphenyl ethane (DBDPE)	10 ppm each	250 mg/kg (*)	With very limited exceptions, flame retardant substances, including the entire class of organohalogen flame retardants, should no longer be applied to materials during production. Listed here are examples of flame-retardant substances used historically across the apparel and footwear industry. It is not intended to be a complete list.	EN ISO 17881-1:2016 / EN ISO 17881-2:2016	5.0 ppm
32534-81-9	Pentabromodiphenyl ether (PentaBDE)		250 mg/kg each			
32536-52-0	Octabromodiphenyl ether (OctaBDE)					
1163-19-5	Decabromodiphenyl ether (DecaBDE)					
various	All other Polybrominated diphenyl ethers (PBDE)					
79-94-7	Tetrabromobisphenol A (TBBP A)					
59536-65-1	Polybromobiphenyls (PBB)		250 mg/kg (*)			
3194-55-6	Hexabromocyclododecane (HBCDD)		250 mg/kg each			
3296-90-0	2,2-bis(bromomethyl)-1,3-propanediol (BBMP)					
13674-87-8	Tris(1,3-dichloro-isopropyl) phosphate (TDCPP)					
25155-23-1	Trixylyl phosphate (TXP)					
126-72-7	Tris (2,3, -dibromopropyl) phosphate (TRIS)					
545-55-1	Tris(1-aziridinyl) phosphine oxide) (TEPA)					
115-96-8	Tris(2-chloroethyl) phosphate (TCEP)					
5412-25-9	Bis(2,3-dibromopropyl) phosphate (BDBPP)					
Continue...▼						

68937-41-7	Isopropylated phosphate (3:1) (PIP (3:1))	10 ppm	250 mg/kg	With very limited exceptions, flame retardant substances, including the entire class of organohalogen flame retardants, should no longer be applied to materials during production. Listed here are examples of flame-retardant substances used historically across the apparel and footwear industry. It is not intended to be a complete list.		5.0 ppm
10043-35-3, 11113-50-1	Boric Acid	1000 ppm	250 mg/kg each		Methanol extraction, ICP	
13654-09-6	Decabromobiphenyl (DecaBB)	N/A			Solvent extraction, GC-MS and/or LC-MS	
1303-86-2	Diboron Trioxide	1000 ppm			Methanol extraction, ICP	
Multiple	Dibromobiphenyls (DiBB)	N/A			Solvent extraction, GC-MS and/or LC-MS	
12008-41-2	Disodium octaborate	1000 ppm			Methanol extraction, ICP	
1303-96-4, 1330-43-4	Disodium tetraborate, anhydrous					
68928-80-3	Heptabromodiphenyl ether (HeptaBDE)	10 ppm			Solvent extraction, GC-MS and/or LC-MS	
36483-60-0	Hexabromodiphenyl ether (HexaBDE)					
Multiple	Monobromodiphenyl ether (MonoBDEs)	10 ppm each				
multiple	Nonabromobiphenyls (NonaBB)					
63936-56-1	Nonabromodiphenyl ether (NonaBDE)					
Multiple	Octabromobiphenyls (OctaBB)					
12267-73-1	Tetraboron disodium heptaoxide, hydrate	1000 ppm			Methanol extraction, ICP	
79-94-7	Tetrabromobisphenol A (TBBPA)				Solvent extraction, GC-MS and/or LC-MS	
21850-44-2	Tetrabromobisphenol A bis (2,3-dibromopropyl ether)	1000 ppm				
40088-47-9	Tetrabromodiphenyl ether (TetraBDE)	10 ppm				
78-30-8	Tri-o-cresyl phosphate	10 ppm				
Continue…▼						

Multiple	Tribromodiphenyl ethers (TriBDEs)	10 ppm	250 mg/kg each			
512-56-1	Trimethyl phosphate					
13674-84-5	Tris (2-chloro-1-methylethyl) phosphate (TCPP)	1000 pm				
Other flame retardants not applicable to this industry are regulated worldwide by the Stockholm Convention and the Aarhus Protocol, which have been implemented in the European Union under the POPs Regulation. The 10 ppm limit is established to account for incidental impurities, byproducts, and contaminants.						
Flame retardants should not be used for any other purpose, e.g., as softeners or plasticizers						
(*) Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						
Fluorinated Greenhouse Gases (See also Appendix A)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
Various	See Regulation (EU) 2024/573 for a complete list.	0.1 ppm each	N/A	Prohibited from use	Sample preparation: Purge and trap — thermal desorption or SPME Measurement: GC/MS	0.1 ppm
Fluorinated Greenhouse Gases (F Gases) are a family of chemicals that contribute to climate change and global warming if emitted to the atmosphere. F Gases are comprised primarily of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6). HFCs are relatively short-lived in the atmosphere, while PFCs and SF6 can remain in the atmosphere for thousands of years. Mostly related to use production processes rather than final product and/or materials.						
Formaldehyde						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
50-00-0	Formaldehyde	Adults & Children: 75 ppm Babies Ages <3 years: 16 ppm	250 mg/kg	Used in textiles as an anti-creasing and anti-shrinking agent. It is also often used in polymeric resins.	All materials (not leather): JIS L 1041-2011 A (Japan Law 112) or EN ISO 14184-1:2011 Leather: EN ISO 17226-2:2019 with EN ISO 17226-1:2021 confirmation method in case of interferences. Alternatively, EN ISO 17226-1:2021	16 ppm
Composite wood materials (Such as particle board and plywood) must comply with existing California and U.S. Formaldehyde emission requirements (40 CFR 770). The TPC's accreditation certificate issued by the EPA-recognized Laboratory AB must specifically include a written reference that the TPC's scope of accreditation includes “40 CFR part 770—Formaldehyde Standards for Composite Wood Products” and the formaldehyde test methods ASTM E1333-10 and ASTM D6007-02, if used. Please note that from 2026 new emission limit will be implemented according to EU REACH Restriction https://echa.europa.eu/documents/10162/1046d94e-f527-0bbb-7435-ad9eb040bea7 .						

Isocyanates						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
3634-83-1	1,3-bis(isocyanatomethyl)benzene (HDI)	1.0 ppm Free content sum of all	N/A	Isocyanates are a group of monomers used to create many types of polymers, including a variety of building products from adhesives to foam insulation and composite woods.	LC-MS/MS	1.0 ppm
101-68-8	Diphenylmethane-4,4-diisocyanate (MDI)					
822-06-0	Hexamethylene diisocyanate (HMDI)					
4098-71-9	Isophorone diisocyanate (IPDI)					
2778-42-9	Tetramethylxylene diisocyanate (TMXDI)					
584-84-9	Toluene-2,4-diisocyanate (2,4-TDI)					
91-08-7	Toluene-2,6-diisocyanate (2,6-TDI)					
Isocyanates are a group of monomers used to create many types of polymers, including a variety of building products from adhesives to foam insulation and composite woods. In general, isocyanates are hazardous air pollutants and are known asthmagens. Isocyanates are sometimes used as a replacement for formaldehyde in certain types of binders. Currently, there is no other binder alternative available without either of these harmful substances. Our recommendation is to prioritize avoidance of formaldehyde.						
Heavy Metals (Extractable and Total) Non Jewelry						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
7440-36-0	Antimony (Sb)	Extractable 30 ppm	Dye 50 mg/kg Pigment 250 mg/kg	Found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.	Extractable: All materials except leather: EN 16711-2:2016 Leather: EN ISO 17072-1:2019 Total: All materials except leather: EN 16711-1:2016 Leather: EN ISO 17072-2:2019	Extractable: 3 ppm
7440-38-2	Arsenic (As)	Extractable 0.2 ppm Total 100 ppm	50 mg/kg	Arsenic and its compounds can be used in preservatives, pesticides, and defoliants for cotton, synthetic fibres, paints, inks, trims, and plastics.		Extractable: 0.1 ppm Total: 10 ppm
Continue...▼						

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
7440-39-3	Barium (Ba)	Extractable 1000 ppm	Dyes and Pigments 100 mg/kg	Barium and its compounds can be used in pigments for inks, plastics, and surface coatings, as well as in dyeing, mordants, filler in plastics, textile finishes, and leather tanning.	Textiles: EN 16711-2:2016 with EN ISO 17075-1:2017 if Cr is detected. Leather: EN ISO 17075-1:2017 and EN ISO 17075-2:2017 for confirmation in case extract causes interference. Alternatively, EN ISO 17075-2:2017 may be used on its own. Ageing test: ISO 10195:2018.	Extractable: 100 ppm
7440-43-9	Cadmium (Cd)	Extractable 0.1 ppm	20 mg/kg (50 mg/kg for pigments)	Cadmium compounds may be used as pigments (especially in red, orange, yellow and green); as a stabilizer for PVC; and in fertilizers, biocides, and paints.		Extractable: 0.05 ppm
		Total 40 ppm				Total: 5 ppm
7440-47-3	Chromium (Cr)	Extractable: Textiles: Babies: 1 ppm Adults and children: 2 ppm	Dyes and Pigments 100 mg/kg	Chromium compounds can be used as dyeing additives; dye fixing agents; colorfastness aftertreatments; dyes for wool, silk, and polyamide (especially dark shades); and leather tanning. Though typically associated with leather tanning, Chromium VI also may be used in the "after-chroming" process for wool dyeing (Chrome salts applied to acid-dyed wool to improve fastness).		Extractable: 0.5 ppm
18540-29-9	Chromium VI	Extractable: Textiles: 0.5 ppm Leather: 3 ppm	10 mg/kg			Extractable: Textiles 0.5ppm Leather 3 ppm
7440-48-4	Cobalt (Co)	Extractable: Adults: 4 ppm Children and babies: 1 ppm	Dyes 500 mg/kg	Cobalt and its compounds can be used in alloys, pigments, dyestuff, and the production of plastic buttons.	All materials except leather: EN 16711-2:2016 Leather: EN ISO 17072-1:2019	Extractable: 0.5 ppm
7440-50-8	Copper (Cu)	Extractable: Adults: 50 ppm Children and babies: 25 ppm	Dyes 250 mg/kg	Copper and its compounds can be found in alloys and pigments, and in textiles as an antimicrobial agent. Copper is exempt from restriction limits in Metal parts.		Extractable: 0.2 ppm Total: 10 ppm

Continue...▼

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
7439-92-1	Lead (Pb)	Extractable: Adults: 1 ppm Children and babies: 0.2 ppm Total: 90 ppm	100 mg/kg	May be associated with alloys, plastics, paints, inks, pigments, and surface coatings. Crystal or "lead glass" is exempt from total Lead restrictions. Indonesia Ministerial Regulation No. 18 limits extractable Lead to 0.2 ppm in towels, bedding, and handkerchiefs.	Extractable: All materials except leather: EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Total: Non-metal: CPSC-CH-E1002-08.3 Metal: CPSC-CH-E1001-08.3 Lead in paint and surface coatings: CPSC-CH-E1003-09.1	Extractable: 0.2 ppm Total: 10 ppm
7439-97-6	Mercury (Hg)	Extractable 0.02 ppm Total: 0.5 ppm	4 mg/kg (25 mg/kg for pigments)	Mercury compounds can be present in pesticides and as contaminants in caustic soda (NaOH). They may also be used in paints and as catalysts in the manufacture of PU and vinyl chloride for use in PVC.	Extractable: All materials except leather: EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Total: All materials except leather: EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2019	Extractable: 0.02 ppm Total: 0.1 ppm
7440-02-0	Nickel (Ni)	Extractable: 1 ppm	Dyes 250 mg/kg	They can occur as impurities in pigments and alloys.		Extractable: 0.1 ppm
7782-49-2	Selenium (Se)	Extractable:500 ppm	Dye 20 mg/kg Pigment 100 mg/kg	May be found in synthetic fibres, paints, inks, plastics, and metal trims.		Extractable: 50 ppm
7440-22-4	Silver (Ag)	100 mg/kg	Dyes 100 mg/kg			10 ppm
7440-31-5	Tin (Sn)	250 mg/kg	Dyes 250 mg/kg			10 ppm

Heavy Metals (Extractable and Total) Jewelry						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
7440-36-0	Antimony (Sb)	Paints & Coatings: Extractable: 60 ppm	Dye 50 mg/kg Pigment 250 mg/kg	Antimony and its compounds can be used as a Flame Retardant in paints, as well as a colorant in pigments.	ASTM: F963-23 as referenced in ASTM F2923:2020 and ASTM F 2999:2019	Extractable: 5 ppm
7440-38-2	Aresenic (As)	Paints & Coatings: Extractable: 25 ppm	50 mg/kg	Arsenic and its compounds can be used in paints and inks.		
7440-39-3	Barium (Ba)	Paints & Coatings: Extractable: 1000 ppm	Paints & Coatings:	Barium and its compounds can be used in pigments for inks		Extractable: 100 ppm
7440-43-9	Cadmium (Cd)	Substrates, Paints & Coatings: Total: Adults: 75 ppm Children: 40 ppm	Substrates, Paints & Coatings:	Cadmium and its compounds are used as pigments (especially in red, orange, yellow, and green). It can also be used in alloys to improve hardness or be found as a contaminant		Total: 5 ppm
7440-47-3	Chromium (Cr)	Paints & Coatings: Extractable: 60 ppm	Dyes and Pigments 100 mg/kg	Chromium and its compounds can be used as pigments in paints. It can also be used as part of alloys such as stainless steel.		Extractable: 5 ppm
7439-92-1	Lead (Pb)	Substrates, Paints & Coatings: Total: 90 ppm	100 mg/kg	Lead and its compounds may be associated with plastics, paints, inks, pigments, and surface coatings. It can also be found in metals as a contaminant. Crystal or “lead glass” is exempt from total Lead restrictions.		Total: 10 ppm
Continue…▼						

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
7439-97-6	Mercury (Hg)	Paints & Coatings: Extractable: 60 ppm	4 mg/kg (25 mg/kg for pigments)	Mercury and its compounds may be used in paints and can be found as a contaminant in alloys and in gold due to its use during the extraction process.	ASTM: F963-23 as referenced in ASTM F2923:2020 and ASTM F 2999:2019	Extractable: 5 ppm
7440-02-0	Nickel (Ni)	Release (metal parts): Prolonged skin contact: 0.5 µg/cm²/week Pierced part: 0.2 µg/cm²/week	Dyes 250 mg/kg	Nickel and its compounds can be used for plating alloys and improving the corrosion-resistance and hardness of alloys. They can also occur as impurities in pigments and alloys.	EN 12472:2020 and EN 1811:2023	Release: Prolonged skin contact: 0.5 µg/cm²/week Pierced part: 0.2 µg/cm²/week
7782-49-2	Selenium (Se)	Paints & Coatings: Extractable: 500 ppm	Dyes 20 mg/kg Pigments 100 mg/kg	Selenium and its compounds may be found in paints and inks.	ASTM: F963-23 as referenced in ASTM F2923:2020 and ASTM F 2999:2019	Extractable: 50 ppm
Monomers						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
100-42-5	Styrene	500 ppm	N/A	May be present in various Styrene co-polymers like plastic buttons. Free styrene is restricted, not total styrene.	Extraction in Methanol GC/MS, sonication at 60°C for 60 minutes	50 ppm
924-42-5	N-(hydroxymethyl)acrylamide	1000 ppm		It can be used in wet-strength and dry-strength agents for paper, in textile finishing agents for crease resistance, in antistatic agents, in dispersing agents, in cross-linking agents and in emulsion polymers.	GC/MS	500 ppm
75-01-4	Vinyl Chloride	1 ppm		May be present in various PVC materials like prints, coatings, flip flops, and synthetic leather.	EN ISO 6401:2022	1 ppm

Nitrosamines						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
62-75-9	N-nitrosodimethylamine (NDMA)	0.5 ppm each	N/A	Can be formed as by-product in the production of rubber.	EN ISO 19577:2019 with LC/MS/MS verification if positive	0.5 ppm each
55-18-5	N-nitrosodiethylamine (NDEA)					
621-64-7	N-nitrosodipropylamine (NDPA)					
924-16-3	N-nitrosodibutylamine (NDBA)					
100-75-4	N-nitrosopiperidine (NPIP)					
930-55-2	N-nitrosopyrrolidine (NPYR)					
59-89-2	N-nitrosomorpholine (NMOR)					
614-00-6	N-nitroso N-methyl N-phenylamine (NMPhA)					
612-64-6	N-nitroso N-ethyl N-phenylamine (NEPhA)					
Organotins Compounds						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
Various	Dibutyltin (DBT)	1 ppm each	20 mg/kg	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., antibacterial), 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,	All materials: CEN ISO/TS 16179:2012 or EN ISO 22744-1:2020	0.1 ppm each
Various	Dioctyltin (DOT)		5 mg/kg			
Various	Monobutyltin (MBT)					
Various	Tricyclohexyltin (TCyHT)		1 mg/kg			
Various	Trimethyltin (TMT)		5 mg/kg			
Various	Trioctyltin (TOT)					
Various	Tripropyltin (TPT)		1 mg/kg			
Various	Tributyltin (TBT)	0.5 ppm each	5 mg/kg			
Various	Triphenyltin (TPhT)					
Continue…▼						

Various	Monooctyltin compound (MOT)			and heat transfer material.		
Various	Monooctyltin compound (MOT)					
Various	Monomethyltin compounds (MMT)					
Various	Dimethyltin Compounds (DMT)					
Various	Dipropyltin compounds (DPT)	N/A	5 mg/kg			
Various	Diphenyltin Compounds (DPhT)		5 mg/kg			
Various	Tetraethyltin Compounds (TeET)		1 mg/kg			
Various	Tetrabutyltin Compounds (TEBT)		1 mg/kg			
Various	Tetraoctyltin Compounds (TeOT)		1 mg/kg			
Ortho-Phenylphenol						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
90-43-7	Ortho-phenylphenol (OPP)	1000 ppm	5000 ppm	OPP is used for its preservative properties in leather or as a carrier in polyester dyeing processes.	Textile: EN 17134-2:2023 Leather: EN ISO 13365-1	100 ppm
Ozone-depleting Substances						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
Various	See Regulation (EU) 2024/59 for a complete list. https://eur-lex.europa.eu/eli/reg/2024/590/oj	5 ppm	N/A	**Prohibited from use.** Ozone-depleting substances have been used as a foaming agent in PU foams as well as a dry-cleaning agent.	All materials: GC/MS headspace 120°C for 45 minutes	5 ppm
Ozone depleting substances (ODS) are a family of chemicals known to significantly damage the atmosphere's ozone layer. Ozone depleting substances are broken down by ultraviolet (UV) radiation to chlorine and bromine which in turn deplete the ozone layer. These can also have a high Global Warming Potential and thus contribute to global climate change.						

Perfluorinated and Polyfluorinated Chemicals (PFCs or PFAS) (See also Appendix B)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
Various	All PFAS as measured by total organic fluorine	100 ppm by 2025 50 ppm by 2027	varies	PFAS may be used in commercial water-, oil-, and stain-repellent agents as well as in breathable membranes that remove moisture, e.g., PTFE. Refer to Appendix C for a list of PFAS substances and CAS nr for which testing can be conducted to indicate whether PFAS chemistry is present above restricted levels due to intended use or unintended contamination.	EN 14582:2016 or ASTM D7359:2023	50 ppm total
Various	Perfluoro octane Sulfonate (PFOS) and related substances	1 µg/m2 25 ppb as per POP Regulation Proposal to change the limit	Sum = 2000 µg/kg		All materials: EN ISO 23702-1:2023 or EN 17681-1:2022 & 17681-2:2022 Important note: New draft updated method prEN 17681-1:2023 for targeted PFAS analysis is likely to be finalized and adopted in a future version of the AFIRM RSL. AFIRM anticipates higher findings of various PFAS analytes, especially FTOHs, with this new method, and industry should prepare accordingly	1 µg/m2
Various	Perfluorooctanoic Acid (PFOA) and its salts	25 ppb total	PFOA = 25 µg/kg PFOA-related substances = 1000 µg/kg			25 ppb total
Various	PFOA-related substances	1000 ppb total				1000 ppb
Various	Perfluorohexane-1-sulphonic acid (PFHxS) and its salts	25 ppb total	1000 µg/kg			25 ppb total
Various	PFHxS-related substances	1000 ppb total	1000 µg/kg			1000 ppb total
Various	C9-C14 Perfluorocarboxylic acids (PFCAs) and their salts	25 ppb total	1000 µg/kg			25 ppb total
Various	C9-C14 PFCA-related substances	260 ppb total	1000 µg/kg			260 ppb total
Various	PFHxA, its salts, and related substance	25 ppb PFHxA-related substances: 1000 ppb	25 µg/kg for PFHxA and 1000 µg/kg for related substance			25 µg/kg for PFHxA and 1000 µg/kg for related substance
335-77-3	Perfluorodecane sulfonic acid (PFDS)	25 ppb (For information purposes only. Recommends testing to assess) control levels.	1000 µg/kg			1000 ppb total
375-22-4	Perfluorobutanoic acid (PFBA)	25 ppb (For information purposes only. Recommends testing to assess) control levels.	1000 µg/kg			1000 ppb total

2043-47-2	4-2 Fluorotelomer alcohols (4:2 FTOH)	25 ppb (For information purposes only. Recommends testing to assess) control levels.	1000 µg/kg			-1000 ppb total
375-73-5	Perfluorobutane sulfonic acid(PFBS)	25 ppb (For information purposes only. Recommends testing to assess) control levels.	1000 µg/kg			1000 ppb total
Pesticides						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
Various	Pesticides (see appendix D for a complete list)	0.5 ppm each	varies	May be found in natural fibres, primarily cotton.	All materials: EPA 8081/EPA 8151A	0.5 ppm
Pesticides are substances or mixtures of substances intended to prevent, destroy, repel, or mitigate any pest. Pesticides can also include substances or mixtures of substances intended for use as a plant regulator, defoliant, or desiccant. Pesticides may be used in upstream agricultural processes to manage a variety of pests. Pesticides may also be added to animal skins such as leather, or to natural fibres such as wool. Pesticides may also be used to control pests or vegetation around facilities.						

Phthalates						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
28553-12-0	Di-Iso-nonyl phthalate (DINP)	50 ppm each Total 1000 ppm	Sum 250 mg/kg	Plasticizers in polymeric materials and coatings Phthalates can be found in: o Flexible plastic components o (e.g., PVC) o Print pastes. o Adhesives o Plastic buttons o Plastic sleevings o Polymeric coatings Listed here are all legally restricted phthalates as well as those included on the REACH substances of very high concern (SVHC) candidate list at the time of publication.	Sample preparation for all materials: CPSC-CH-C1001-09.4 Measurement: Textiles: GC/MS, EN ISO 14389:2022 (8.1 Calculation based on weight of print only, 8.2 Calculation based on weight of print and textile if print cannot be removed). All materials except textiles: GC/MS	50 ppm each
117-84-0	Di-n-octyl phthalate (DNOP)					
117-81-7	Di(2-ethylhexyl)-phthalate (DEHP)					
26761-40-0	Diisodecylphthalate (DIDP)					
85-68-7	Butylbenzylphthalate (BBP)					
84-74-2	Dibutyl phthalate (DBP)					
84-69-5	Diisobutyl phthalate (DIBP)					
84-75-3	Di-n-hexylphthalate (DnHP)					
84-66-2	Diethyl phthalate (DEP)					
131-11-3	Dimethyl phthalate (DMP)		Sum 250 mg/kg (*)			
131-18-0	Di-n-pentyl phthalate (DPENP)		Sum 250 mg/kg			
84-61-7	Dicyclohexyl phthalate (DCHP)					
71888-89-6	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich					
117-82-8	Bis(2-methoxyethyl) phthalate					
605-50-5	Diisopentyl phthalate (DIPP)					
131-16-8	Dipropyl phthalate (DPRP)					
27554-26-3	Diisooctyl phthalate (DIOP)					
68515-50-4	Diisohexyl phthalate (DIHP)					
68515-42-4	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)					
Continue…▼						

68648-93-1 68515-51-5	1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate; 1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters; 1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters	50 ppm each Total 1000 ppm	Sum 250 mg/kg (*)			50 ppm each
71850-09-4	Diisohexyl phthalate (DIHP)		Sum 250 mg/kg			
84-76-4	Dinonyl phthalate (DNP)					
84777-06-0	1,2-Benzenedicarboxylic acid		Sum 250 mg/kg			
26040-51-7	Bis(2-ethylhexyl) tetrabromophthalate		Sum 250 mg/kg (*)			
776297-69-9	n-pentyl-isopentyl phthalate		Sum 250 mg/kg			
(*)Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						
Polycyclic Aromatic Hydrocarbons (PAHs)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
83-32-9	Acenaphthene	No Individual restriction Total: 10 ppm	Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg	PAHs are natural components of crude oil and are common residues from oil refining. PAHs have a characteristic smell similar to that 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	All materials: AFPS GS 2019 or EN 17132 or ISO 16190	0.2 ppm each
208-96-8	Acenaphthylene(3) (4)					
120-12-7	Anthracene (3) (4)					
191-24-2	Benzo (g,h,i)perylene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
86-73-7	Fluorene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
206-44-0	Fluoranthene (3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
Continue...▼						
193-39-5	Indenol(1,2,3-cd) pyrene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			

91-20-3	Naphthalene (3)		Sum(3) = 200 mg/kg 200 mg/kg (leather)	for screen prints. PAHs can be present as impurities in Carbon Black.		
85-01-8	Phenanthrene(3) (4)	No Individual restriction Total 10 ppm	Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg	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).	All materials: AFPS GS 2019 or EN 17132:2019 or ISO 16190:2021	0.2 ppm each
129-00-0	Pyrene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
56-55-3	Benzo(a)anthracene(3) (4)	1 ppm each Childcare products 0.5 ppm each	Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
50-32-8	Benzo(a)pyrene		20 ppm			
205-99-2	Benzo(b)fluoranthene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
192-97-2	Benzo[e]pyrene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
205-82-3	Benzo[j]fluoranthene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg (*)			
192-97-2	Benzo[e]pyrene(3) (4)					
205-82-3	Benzo[j]fluoranthene(3) (4)					
207-08-9	Benzo(k)fluoranthene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
218-01-9	Chrysene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			
53-70-3	Dibenzo(a,h)anthracene(3) (4)		Sum(3) = 200 mg/kg , Leather Sum (4)=200 mg/kg			

Some PAHs can be very toxic to aquatic organisms and, above certain exposure levels, may cause long-term adverse effects in the aquatic environment.
Above certain levels, long-term exposure to some PAHs may result in the development of particular cancers. Some PAHs, above certain exposure levels, may impair human fertility or cause harm to unborn children. Inhalation of PAHs in the air can irritate the eyes and the respiratory tract.
(*)Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.

Quinoline						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
91-22-5	Quinoline	50 ppm	1000 mg/kg	Found as an impurity in polyester and some dyestuffs. Quinoline can be included with disperse dye testing, as the same method is used for both.	All materials: DIN 54231:2022 with methanol extraction at 70°C	10 ppm
Quinoline can appear as a contaminant in dispersing agents. In order to aid the dyeing process, disperse and vat dyes are formulated with dispersing agents. Naphthalene sulfonate formaldehyde condensates are a commonly used class of dispersing agents. These condensates are manufactured from naphthalene, and a minor by-product in the processing of naphthalene is quinoline. This can be carried out through the manufacturing of naphthalene sulfonate formaldehyde condensate dispersing agents. In addition to the manufacture of dispersing agents and dyes, quinoline also has biocidal properties and so may also be used as a fungicide. Quinoline is classified as a carcinogenic substance. Quinoline has a high solubility in water and is toxic to aquatic life. This makes it of concern in manufacturing processes where the dyed textiles are washed. There is potential for harm to downstream aquatic life.						
Silicones						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
556-67-2	Octamethylcyclotetrasiloxane (D4)	1000 ppm	1000 mg/kg	Silicone is a type of synthetic rubber which can be found in rubber or latex material such as rugs or other type of backings, textile coatings such as Polyurethane, textile softeners, alternative water repellant coatings and different elastic plastic materials etc.	Solvent extraction, followed by GC-MS	10 ppm
541-02-6	Decamethylcyclopentasiloxane (D5)					
540-97-6	Dodecamethylcyclohexasiloxane (D6)					
2020, was the Sunset date from which the substance, shall not be placed on the market in wash-off cosmetic products in a concentration equal to or greater than 0,1 % by weight of either substance						

Pentachlorothiophenol (PCTP)						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
133-49-3	Pentachlorothiophenol (PCTP)	1%	N/A	Used in Rubber including but not limited to: 1. Butadiene rubber, 2. Isoprene rubber, 3. Natural rubber, and 4. Other rubber materials	Solvent extraction / GC-MS / LCMSMS / LC-DAD	100 ppm
Solvents and Residuals						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
68-12-2	Dimethylformamide (DMFa)	500 ppm	1000 mg/kg	Solvent is used in plastics, rubber, and polyurethane (PU) coating. Water based PU does not contain DMFa and is therefore preferable.	Textiles: EN 17131:2019 All other materials: ISO 16189:2021	50 ppm each
75-12-7	Formamide	1000 ppm	1000 mg/kg(*)	Byproduct in the production of EVA foams.		
127-19-5	Dimethylacetamide (DMAC)		1000 mg/kg	Solvent used in the production of elastane fibres and some-times as substitute for DMFa.		
2687-91-4	N-Ethyl-2 pyrrolidone (NEP)	N/A	1000 mg/kg	Adhesives and glues	GC-MS	
872-50-4	N-Methyl-2-pyrrolidone (NMP)	1000 ppm	1000 mg/kg	Industrial solvent is used in the production of water-based Polyurethanes and other polymeric materials. May also be used as a surface treatment for textiles, resins, and metal-coated plastics, or as a paint stripper.	Textiles: EN 17131:2019 All other materials: ISO 16189:2021	

DMFa is a colorless, fishy smelling liquid which is miscible with water and many other organic solvents. It is a solvent commonly used in the production of polyurethane coated materials such as synthetic leathers. It can also be used to process coatings, adhesives, plastics, acrylic fibres, PU resins, or as a cleaning solvent. DMAC and NMP have similar uses but are less common in manufacturing than DMFa. Formamide can be used as a solvent in the manufacture and processing of plastics or in the spinning of acrylonitrile copolymers.
May be found in; Dispersing agents for disperse dyes as an impurity, Polyester as an impurity, some cyanine dyestuffs (e.g., Disperse Yellow 54).

(*)Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.

UV Absorbers / Stabilizers

CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
2440-22-4	UV-P (Drometrizole)	For informational purposes only. Recommends testing to assess content levels.	N/A	Used as UV Absorbers for Plastics (PVC, PET, PC, PA, ABS, and other Polymers), Rubber, and Polyurethane.	ISO 24040:2022 with extraction in THF, analysis by GC/MS	100 ppm each
3846-71-7	UV 320	1000 ppm	1000 mg/kg	PU foam materials such as open cell foams for padding. Used as UV-absorbers for plastics (PVC, PET, PC, PA, ABS, and other polymers), rubber, polyurethane.		
3864-99-1	UV 327					
25973-55-1	UV 328					
36437-37-3	UV 350					

These substances may cause damage to organs through prolonged or repeated exposure, are harmful to aquatic life with long lasting effects, and are suspected of causing cancer. The last four UV Absorbers listed above are classified under REACH as SVHCs while the latter (Drometrizole) is known as a skin sensitizer and is also known to be very toxic to aquatic life.

Volatile Organic Compounds						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
71-43-2	Benzene	5 ppm	50 mg/kg	These VOCs should not be used in textile auxiliary chemical preparations. They are associated with solvent-based processes such as solvent-based polyurethane coatings and glues/adhesives. They should not be used for any kind of facility cleaning or spot cleaning.	For general VOC screening: GC/MS headspace 45 minutes at 120° C	Benzene: 5 ppm Other: 20 ppm each
75-15-0	Carbon Disulfide	Total: 1000 ppm	1000 mg/kg(*)			
56-23-5	Carbon tetrachloride					
67-66-3	Chloroform					
108-94-1	Cyclohexanone					
107-06-2	1,2-Dichloroethane		5 mg/kg			
75-35-4	1,1-Dichloroethylene		1000 mg/kg(*)			
100-41-4	Ethylbenzene					
76-01-7	Penta chloroethane					
630-20-6	1,1,1,2- Tetrachloroethane					
79-34-5	1,1,2,2- Tetrachloroethane					
127-18-4	Tetrachloroethylene (PERC)		5 mg/kg			
108-88-3	Toluene		500 mg/kg			
71-55-6	1,1,1- Trichloroethane		1000 mg/kg(*)			
79-00-5	1,1,2- Trichloroethane					
79-01-6	Trichloroethylene		40 mg/kg			
1330-20-7	Xylenes (meta-, ortho-, para-)		500 mg/kg			
108-38-3						
95-47-6						
106-42-3						
(*)Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						

Glycols / Glycol Ethers						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
110-80-5	2-Ethoxyethanol	N/A	50 mg/kg	In apparel and footwear, glycol ethers / glycol esters 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).	LC-MS, GC-MS	50 ppm each
111-15-9	2-Ethoxyethanol					
109-86-4	2-Methoxyethanol					
110-49-6	2-Methoxyethyl acetate					
1589-47-5	2-Methoxypropanol					
70657-70-4	2-Methoxypropyl acetate					
111-96-6	Bis (2-methoxyethyl) ether					
110-71-4	Ethylene glycol dimethyl ether					
112-49-2	Triethylene glycol dimethyl ether					
Other / Miscellaneous Chemicals						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
111-41-1	2-(2-Aminoethylamino)ethanol (AEEA)	N/A	100 mg/kg	Chelating agents, surfactants, and fabric softeners.	LC MS/MS or GC-MS	50 ppm
1332-07-6	Borate, Zinc Salt		1000 mg/kg	Flame retardant as well as in paints, pigments, and adhesives	Acid digestion, ICP	20 ppm
varies	Perboric acid, sodium salt			Used in formulations	methanol exstraction, ICP	20 ppm
14464-46-1	Silica (particles of respirable size)	1000 ppm	1000 ppm (*)	Respirable particles of silica are often generated during the process of sand blasting.	due diligence	20 ppm
123-77-3	Diazene-1,2-dicarboxamide[C-C'-azodi(formamide)]	1000 ppm	1000 ppm	Used in the footwear processes	LC/MS, LC/DAD	100 ppm
80-43-3	Bis(α,α-dimethylbenzyl) peroxide (201-279-3/80-43-3)[1]	1000 ppm	1000 ppm	Manufacture of plastic and rubber products and chemicals	GC/MS	100 ppm
62-56-6	Thiourea	N/A	1000 mg/kg	Improves solubility.	LC MS/MS	50 ppm

13463-67-7	Titanium Dioxide	N/A	1% (w/w) of TiO2 particles have aerodynamic diameter ≤10 µm. (Liquid mixtures or emulsions or pastes containing TiO2, having proper GHS/CLP classification, are allowed for use.)	Powders and mixtures	LC-DAD MS	10 ppm
(*)Additional requirements for Primark MRSL not covered in ZDHC MRSL V3.1 substance list.						

Other / Miscellaneous Chemicals						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
1319-77-3	Cresol (all isomers)	N/A	500 mg/kg	Glues and adhesives	formulator should provide confirmed data to demonstrate conformance with particle size requirements for TiO2	5 mg/kg
95-48-7	o-Cresol				GC-MS	5 mg/kg
108-39-4	m-Cresol					5 mg/kg
106-44-5	p-Cresol					5 mg/kg
Anti-microbials and Biocides						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit
52645-53-1	Permethrin	N/A	250 mg/kg		Solvent extraction, LC MS, GC MS	
3380-34-5	Triclosan	N/A			Solvent extraction, LC MS, DAD ISO 22992-2	
Halogenated Solvents						
CAS No.	Substance Name	Restriction	Restriction MRSL	Potential Uses	Test Method	Reporting Limit

75-09-2	Methylene chloride	N/A	5 mg/kg	In apparel and footwear, halogenated solvents are used as finishing / cleaning and printing agents, for dissolving / diluting fats, oils, and adhesives (in degreasing or cleaning operations).	GC-MS	0,5 mg/kg

APPENDICES

Appendix A Fluorinated Greenhouse Gases

CAS No.:	Substance Name	CAS No.:	Substance Name
various	Hydrofluorocarbons (HFCs)	7783-54-2	Nitrogen Trifluoride
various	Perfluorocarbons (PFCs)	373-80-8	Trifluoromethyl Sulphur Pentafluoride
2551-62-4	Sulphur Hexafluoride (SF6)	931-91-9	Hexafluorocyclopropane
various	Unsaturated Hydro(chloro) fluorocarbons		
various	Fluorinated Ethers and Alcohols		
69991-67-9	Perfluoropolymethylisopropyl-ether (PFPMIE)		

Fluorinated Gases have been used as substitutes for ozone-depleting substances. HFCs may be used as foam blowing agents, solvents, fire retardants, aerosol propellants, and refrigerants. PFCs are commonly used within electrical transmission equipment and circuit breakers.2 A detailed list of production information, F Gas usage, and related information is available.

Fluorinated Gases have a higher Global Warming Potential (GWP) than carbon dioxide and thus contribute more to global warming. Different greenhouse gases remain in the atmosphere for varying amounts of time. Actions to reduce emissions now will take years to result in changes in the atmosphere.

May Be Found In

- Foam blowing agents.
- Solvents
- Fire retardants
- Aerosol propellants
- Refrigerants
- Electrical transmission equipment

Appendix B Perfluorinated and Polyfluorinated Chemicals (PFCs or 'PFAS')

Please note that the listing below are substances specifically restricted, and the list is not exhaustive.

CAS No.:	PFC (PFAS) Name	CAS No.:	PFC (PFAS) Name
PFOS and Related Substances		PFHxS and Its Salts	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	355-46-4	Perfluorohexane Sulfonic acid (PFHxS)
2795-39-3	Perfluorooctanesulfonic acid, potassium salt (PFOS-K)	3871-99-6	Perfluorohexane Sulfonic acid, potassium salt (PFHxS-K)
29457-72-5	Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	55120-77-9	Perfluorohexane Sulfonic acid, lithium salt (PFHxS-Li)
29081-56-9	Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH4)	68259-08-5	Perfluorohexane Sulfonic acid, ammonium salt (PFHxS-NH4)
70225-14-8	Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH)2)	82382-12-5	Perfluorohexane Sulfonic acid, sodium salt (PFHxS-Na)
56773-42-3	Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C2H5)4)	PFHxS-related Substances	
251099-16-8	Didecyldimethyl ammonium perfluorooctane sulfonate (PFOS-N(C10H21)2(CH3)2)	68259-15-4	N-Methylperfluoro-1-hexanesulfonamide (N-Me-FHxSA)
4151-50-2	N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)	41997-13-1	Perfluorohexane sulfonamide (PFHxSA)
31506-32-8	N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)	C9 – C14 PFCAs and Their Salts	
1691-99-2	2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)	375-95-1	Perfluorononanoic Acid (PFNA, C9-PFCA)
24448-09-7	2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)	335-76-2	Perfluorodecanoic Acid (PFDA, C10-PFCA)
307-35-7	Perfluoro-1-octanesulfonyl fluoride (POSF)	2058-94-8	Perfluoroundecanoic Acid (PFUnA, C11-PFCA)
754-91-6	Perfluorooctane sulfonamide (PFOSA)	307-55-1	Perfluorododecanoic Acid (PFDoA, C12-PFCA)
PFOA and Its Salts		72629-94-8	Perfluorotridecanoic Acid (PFTrDA, C13-PFCA)
335-67-1	Perfluorooctanoic acid (PFOA)	376-06-7	Perfluorotetradecanoic Acid (PFTeDA, C14-PFCA)
335-95-5	Sodium perfluorooctanoate (PFOA-Na)	172155-07-6	Perfluoro-3-7-dimethyloctanecarboxylate (PF-3,7-DMOA)
2395-00-8	Potassium perfluorooctanoate (PFOA-K)	C9 – C14 PFCA-related Substances	
335-93-3	Silver perfluorooctanoate (PFOA-Ag)	17741-60-5	1H,1H,2H,2H-Perfluorododecyl acrylate (10:2 FTA)
335-66-0	Perfluorooctanoyl fluoride (PFOA-F)	2144-54-9	1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)
3825-26-1	Ammonium pentadecafluorooctanoate (APFO)	865-86-1	1H,1H,2H,2H-Perfluorododecanol (10:2 FTOH)
PFOA-related Substances		34598-33-9	2H,2H,3H,3H-Perufloroundecanoic acid (H4PFUnA)
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	678-39-7	Perfluorocylethanol 8:2 (8:2 FTOH)
376-27-2	Methyl perfluorooctanoate (Me-PFOA)	39239-77-5	1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)
3108-24-5	Ethyl perfluorooctanoate (Et-PFOA)	120226-60-0	1H,1H,2H,2H-Perfluorododecanesulphonic acid (10:2 FTS)
678-39-7	2-Perfluorooctylethanol (8:2 FTOH)	2043-54-1	1H,1H,2H,2H-Perfluorododecyl iodide (10:2 FTI)
27905-45-9	1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	30046-31-2	1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)
1996-88-9	1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	PFHxA, Its Salts, and Related Substances	
		307-24-4	Perfluorohexanoic Acid (PFHxA, C6-PFCA)
		27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)
		647-42-7	1H,1H,2H,2H-Perfluorooctanol (6:2 FTOH)
27854-31-5	2H,2H-Perfluorodecanoic acid (H2PFDA)		

In addition to this list, all PFOA- and PFOS-related substances are prohibited from use and are regulated worldwide by the Stockholm Convention and the Aarhus Protocol, which have been implemented in the European Union under the POPs Regulation.
Perfluorinated and Polyfluorinated Chemicals (PFCs) belong to the perfluoroalkyl family of substances. PFCs are synthetic substances that do not occur naturally in the environment. PFCs are substances with special properties including fire resistance and oil, stain, grease, and water repellency that have hundreds of important manufacturing and industrial applications.

Regulations around the world ban the use of PFAS in apparel and footwear, with partial or full exemptions for personal protective equipment and outdoor apparel for severe wet conditions. See California AB 1817 and check with your brand customer for their exemption policy, which may depend on the market.
California AB-1817 Product safety: textile articles: perfluoroalkyl and polyfluoroalkyl substances (PFAS).(2021-2022)

Appendix C Pesticides and Herbicides, Agricultural

CAS No.:	Pesticide Name	CAS No.:	Pesticide Name
93-72-1	2-(2,4,5-trichlorophenoxy) propionic acid, its	72-20-8	Endrine
93-76-5	2,4,5-T	66230-04-4	Esfenvalerate
94-75-7	2,4-D	106-93-4	Ethylendibromid
309-00-2	Aldrine	56-38-2	Ethylparathione; Parathion
86-50-0	Azinophosmethyl	51630-58-1	Fenvalerate
2642-71-9	Azinophosethyl	Various	Glyphosate and salts
4824-78-6	Bromophos-ethyl	Various	Halogenated naphthalenes, including polychlorinated naphthalenes (PCNs)
2425-06-1	Captafol	76-44-8	Heptachlor
63-25-2	Carbaryl	1024-57-3	Heptachloroepoxide
510-15-6	Chlorbenzilat	319-84-6	a-Hexachlorocyclohexane with & without Lindane
57-74-9	Chlordane	319-85-7	b-Hexachlorocyclohexane with & without Lindane
6164-98-3	Chlordimeform	319-86-8	g-Hexachlorocyclohexane with & without Lindane
470-90-6	Chlorfenvinphos	118-74-1	Hexachlorobenzene
1897-45-6	Chlorthalonil	465-73-6	Isodrine
56-72-4	Coumaphos	4234-79-1	Kelevane
68359-37-5	Cyfluthrin	143-50-0	Kepone
91465-08-6	Cyhalothrin	58-89-9	Lindane
52315-07-8	Cypermethrin	121-75-5	Malathione
78-48-8	S,S,S-Tributyl phosphorotrithioate (Tribufos)	94-74-6	MCPA
52918-63-5	Deltamethrin	94-81-5	MCPB
53-19-0	DDD	93-65-2	Mecoprop
72-54-8		10265-92-6	Metamidophos
3424-82-6	DDE	72-43-5	Methoxychlor
72-55-9		2385-85-5	Mirex
50-29-3	DDT	6923-22-4	Monocrotophos
789-02-6		298-00-0	Parathion-methyl
333-41-5	Diazinone	1825-21-4	Pentachloroanisole
1085-98-9	Dichlofluanide	7786-34-7	Phosdrin/Mevinphos
120-36-5	Dichloroprop	72-56-0	Perthane
115-32-2	Dicofol	31218-83-4	Propethamphos
141-66-2	Dicrotophos	41198-08-7	Profenophos
60-57-1	Dieldrine	13593-03-8	Quinalphos
60-51-5	Dimethoate	82-68-8	Quintozene
88-85-7	Dinoseb, its salts and acetate	8001-50-1	Strobane
63405-99-2	DTTB (4, 6-Dichloro-7 (2,4,5-trichlorophenoxy) -2-Trifluoro methyl benz imidazole)	297-78-9	Telodrine
115-29-7	Endosulfan	8001-35-2	Toxaphene
959-98-8	Endosulfan I (alpha)	731-27-1	Tolylfluanide
33213-65-9	Endosulfan II (beta)	1582-09-8	Trifluraline
87-68-3	Hexachlorobutadiene (HCBD)	3380-34-5	Triclosan

Pesticides are substances or mixtures of substances intended to prevent, destroy, repel, or mitigate any pest.
Pesticides can also include substances or mixtures of substances intended for use as a plant regulator, defoliant, or desiccant.
Pesticides may be used in upstream agricultural processes to manage a variety of pests.
Pesticides may also be added to animal skins such as leather, or to natural fibres such as wool.
Pesticides may also be used to control pests or vegetation around facilities.

Appendix D Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs) all isomers

CAS No.:	Alkylphenol (AP)	CAS No.:	Alkylphenol Ethoxylates (APEOs)
140-66-9	4-tert-Octylphenol	9002-93-1	Polyethylene glycol 4-(tert-octylphenyl) ether
1806-26-4	4-n-Octylphenol	9036-19-5	Polyethylene glycol mono(octyl)phenyl ether
27193-28-8	Octylphenol	68987-90-6	Poly (oxy-1,2-ethanediyl), alpha-(octylphenyl)omega-hydroxy-, branched
104-40-5	4-nonylphenol	9016-45-9	Poly (oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-
11066-49-2	Isononylphenol	26027-38-3	Poly (oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy
25154-52-3	Nonylphenol	37205-87-1	Poly (oxy-1,2-ethanediyl), alpha-(isononylphenyl)-omega-hydroxy
84852-15-3	Phenol, 4-nonyl-, branched	68412-54-4	Poly (oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched
		127087-87-0	Poly (oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched

There are many potential CAS numbers which comprise the APEO class of chemistry. Some of the more common ones are listed in this document, but the list is not inclusive of all the APEOs.

Alkylphenols (Aps) may found used in:

- Outsole materials of shoes
- Plastic and rubber components of apparel, footwear, and accessories
- Jelly plastic sandals

Alkylphenol Ethoxylates (APEOs) may be found in:

- Industrial laundry detergent
- Scouring agents (e.g., wool and leather)
- Wetting agents
- Softeners
- Spinning oils (yarn and fabric)
- Emulsifier/dispersing agents for dyes and prints
- Impregnating agents
- Degreasing agents for leather hides
- Leather-finishing preparations
- De-gumming agents for silk production
- Dyes and pigment preparations
- Polyester padding
- Down/feather fillings
- Binders for interlinings
- Facility cleaning products.

Appendix 1 Regulatory References

Country / Region	Regulation/Legislation	Link
USA	California Proposition 65 [Prop 65)	https://oehha.ca.gov/proposition-65/proposition-65-list
USA	CPSIA 2008 16 CFR Part 1610	https://www.cpsc.gov/Regulations-Laws—Standards/Statutes/The-Consumer-Product-Safety-Improvement-Act
USA	Federal Hazardous Substance Act (15 U.S.C.)	https://www.cpsc.gov/s3fs-public/pdfs/blk_pdf_fhsa.pdf
USA	National Waste Minimization Program	https://archive.epa.gov/epawaste
USA	Occupational Safety and Health Act of 1970	https://www.osha.gov/laws-regs/oshact/completeoshact
USA	Toxic Substance Control Act (TSCA)	https://www.epa.gov/tsca-inventory.
USA	Washington Children's Safe Product ACT (CPSA)	https://ecology.wa.gov/Waste-Toxics.
USA	18 V.S.A. chapter 38A	http://legislature.vermont.gov/statutes/fullchapter/18/038A
USA	38 § 1693	http://www.maine.gov/dep/safechem/highconcern/
USA	RCW 70.240	http://www.ecy.wa.gov/programs/hwtr/rtt/cspa/chcc.html
USA	SB 478	https://public.health.oregon.gov/HealthyEnvironments/HealthyNeighborhoods/ToxicSubstances/Pages/childrens-chemicals-of-concern.aspx
USA	California AB-1817 Product safety: textile articles: perfluoroalkyl and polyfluoroalkyl substances (PFAS)	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1817
TSCA	Toxic Substances Control Act	https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals
EU/EFTA	REACH ANNEX XVII RESTRICTIONS	https://echa.europa.eu/substances-restricted-under-reach
EU/EFTA	REACH SVHC CANDIDATE LIST	https://echa.europa.eu/candidate-list-table
EU/EFTA	POP Regulations	https://echa.europa.eu/list-of-substances-subject-to-pops-regulation
UK	UK REACH	https://www.hse.gov.uk/reach/index.htm
UK	UK REACH Annex 14 Authorization List	https://www.hse.gov.uk/reach/authorisation-list.htm
UK	UK REACH SVHC CANDIDATE LIST	https://www.hse.gov.uk/reach/svhc.htm

Appendix 2 Glossary

Required limit value:	Limit value as agreed in the business sector and or by legal requirements. Note that limit value is measured in products. Weight percent shall be calculated from the weight of the whole product if nothing else is stated.
CAS RN:	Chemical abstract services registration number. CAS Registry Number® (CAS RN) are given for specific defined substances.
Properties:	Human toxicological and Eco toxicological properties.
Use:	Identified uses on the market.
Comments:	Information on known alternatives and recommendations on how to avoid unwanted chemicals.
Detection limit:	Limit of detection (LOD). The lowest concentration the test equipment is able to detect. This can vary between different test laboratories. Note that detection limit is not relevant as required limit values for all substances as the background concentrations can be notably higher.
Legal background:	Current legal international and national framework and requirements. Substances listed on Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 (REACH) leads to information duty if the concentration is above 0.1 weight-% (1000 mg/kg).
MADL:	Maximum Allowable Dose Levels. Safe harbor levels for chemicals causing reproductive toxicity in Proposition 65.
NSRL:	No Significant Risk Levels. Safe harbor levels for cancer-causing chemicals in Proposition 65.
Quantification limit:	Limit of quantification (LOQ). The smallest concentration of an analyte, which can be reliably measured by an analytical procedure.
ppm:	Parts per million, which is the same as mg/kg.
SVHC:	Substances of Very High Concern
Test method:	Standardized test method if such exists. ISO/EN standards are prioritized over national or commercial standards. Test equipment if no standardized test method exists. Abbreviations of recommended test equipment are explained below. All substances in a chemical group may not be legally regulated, but still included as a chemical group in this guide. As it can distinguish between different laboratories which substances besides the legal restricted, they offer test for, this should be confirmed before ordering.
CHCC	Chemicals of high concern to children

Appendix 3 Revision History

Date	Version #	Page/Ref	Reason
08/2023	1.1	All	First Release
11/2024	1.2	All	Updated requirements according to regulatory updates, AFIRM 2024 and ZDHC MRSL V3.1.