



FASHION, HOME & BEAUTY

Marks and Spencer

Restricted Chemical Policy

Environment and Chemical Policy

Version 4.3

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1. Introduction

1.1 Scope

Every facility that supplies materials and product for M&S must comply with the requirements of the M&S Environment and Chemical Policy (ECP). The ECP details how facilities should manage chemical and environmental risks to ensure that M&S products are responsibly manufactured to protect consumers, workers, and the environment.

The M&S Restricted Chemical Policy (RCP), contains the following guidance:

- ZDHC Manufacturing Restricted Substances List (MRSL) - restricts the input of hazardous chemicals to the manufacturing process. The chemicals listed are banned from deliberate use in formulations. This list has been developed by the Zero Discharge of Hazardous Chemicals Foundation (ZDHC), of which M&S is a signatory member.
- M&S Restricted Substances List (RSL) - defines the limits for residues of hazardous chemicals allowed on the finished product.
- RSL Risk assessment table – guidance regarding the restricted substances associated with different types of fibres and materials and for use in selecting due diligence tests.

Failure to comply with the M&S RCP may result in a fine or the rejection of the supplier's product. M&S reserve the right to Return to Manufacturer (RTM) the product at the supplier's cost.

This document should be read alongside the M&S Global Sourcing Principles and the M&S Environment & Chemical Policy. The ECP details how a supplier should manage chemicals at their facility, whilst the RCP provides detail on the specific chemicals of concern.

1.2 Rationale & Objectives

M&S are committed to sourcing responsibly manufactured products through their supply chain and protecting consumers, workers, and the environment. The M&S Restricted Chemical Policy helps to ensure this by:

- Implementing the strictest legal chemical requirements, aligned with UK, EU, US and international market regulation.
- Eliminating specific chemicals of concern.
- Promoting the selection of compliant chemistry in manufacturing to assure product compliance.
- Providing guidance on chemicals which may pose a higher risk of being used in the dyeing and finishing of specific materials.

It is the responsibility of M&S's suppliers to share the ECP and the Restricted Chemical Policy with the rest of their supply chain and to ensure that all chemicals and materials used in the manufacturing of M&S's products are compliant with legal requirements, the M&S ECP, the Global Sourcing Principles, and the Restricted Chemical Policy.

1.3 Legal Considerations

It is the responsibility of M&S's suppliers to ensure that chemicals and finished products comply with all relevant local and global legislation. We expect M&S's primary suppliers to nominate a competent person that has clear responsibility to monitor compliance with the MRSL and RSL, and local and global chemical requirements.

1.4 ZDHC Signatory brand

M&S is a signatory brand member of the Zero Discharge of Hazardous Chemicals (ZDHC). The ZDHC is a collaborative, multi-stakeholder organisation comprising over 320 signatories from across the apparel and footwear industry including Brands, Suppliers, Solution Providers and Chemical Suppliers.

The ZDHC Roadmap to Zero Programme works with stakeholders in the fashion industry to phase out hazardous chemicals from the global value chain by building the foundation for more sustainable manufacturing with a goal to protect workers, consumers, and our planet's ecosystems.

The programme promotes a standardised approach to how the footwear and apparel industry manage their chemical inputs, processes, and outputs.

M&S has committed to implementing the ZDHC tools and guidelines across the supply chain with an aim to prevent the use of hazardous substances in production and to ensure that hazardous chemicals are not discharged into the environment. The ZDHC tools and guidelines can be found on the Roadmap to Zero website and include:

1. The ZDHC Manufacturing Restricted Substance List (MRSL).
2. The ZDHC Chemical Management System (CMS) Framework.
3. The ZDHC CMS Technical Industry Guide (TIG).
4. The ZDHC Wastewater Guidelines.

As a signatory brand of the ZDHC foundation, M&S are committed to the use of safer chemical inputs and have adopted the ZDHC MRSL and Wastewater Guidelines. M&S's ECP is aligned with the guidelines established by ZDHC, and M&S are working to implement ZDHC approved chemical management tools across their wet processing facilities.

Find out more about the work of the ZDHC at their [website](#).

2. Supply Chain Responsibilities

2.1 Garment Manufacturer

It is the responsibility of the garment manufacturer to ensure that each wet processor in their supply chain:

1. Has a current copy of the MRSL and RSL.
2. Complies with the MRSL and RSL.
3. Has appointed a competent person to monitor compliance with the MRSL and RSL, and local and global chemical legislation.

As stated above, it is the responsibility of M&S's suppliers to share the ECP and the Restricted Chemical Policy with the rest of their supply chain to ensure compliance with the MRSL & RSL.

2.2 Wet Processor

It is the responsibility of the wet processing facility to ensure that they:

1. Have a current copy of the MRSL and RSL.
2. Comply with the MRSL and RSL.
3. Have appointed a competent person to monitor compliance with the MRSL and RSL, and local and global chemical legislation.
4. Have a chemical purchasing policy in place to ensure all chemicals are checked and compliant with the MRSL.
5. Undertake robust chemical management practices.
6. Have shared the MRSL with their chemical suppliers and can supply proof of compliance.

2.2.1 Demonstrating Chemical Compliance

M&S is a signatory brand member of the ZDHC and, as part of the commitment to safer input chemistry, requires wet processing facilities to show that formulations within their chemical inventory meet the requirements of the ZDHC MRSL.

There are several ways to check formulations are compliant:

- **The ZDHC Gateway:** Conformance can be checked through the **ZDHC Gateway Chemical Module**, a database of compliant chemical products. Level 1 conformance or above gives assurance of analytical testing, supported screening and SDS review of relevant MRSL substances information.
- **'Positive Lists':** Some chemical suppliers issue lists of dyes and auxiliaries that are compliant with the limits stated on the MRSL. Formulations in these lists are declared to be compliant.

All wet processors must register on the **ZDHC Gateway** to access the Chemical Module.

The wet processor should retain the right to have any formulation analysed for MRSL compliance as a form of due diligence and discuss the results with the chemical supplier.

On request, M&S expect to be provided with the details of all chemicals and dyes used on any M&S product e.g., Chemical name, supplier, evidence of MRSL compliance etc.

2.2.2 Chemical Inventory List

To comply with the M&S ECP, the facility must provide a full, current Chemical Inventory List (CIL) where all dyes and chemicals used in the facility's processing must be recorded. The CIL must be available on demand and should take the format of the **ZDHC Chemical Inventory List**.

As specified by ZDHC, the following chemical categories should be recorded on the CIL:

- **Dyes:** Dyes and pigments used in any colouration process.
- **Auxiliaries:** Proprietary formulations from auxiliary manufacturers used for specific process applications, such as sourcing agents, levelling agents, lubricants, resins, water repellents, softeners etc.
- **Chemical substances:** Non-formulated individual chemicals from local chemical suppliers, such as sodium hydroxide, acetic acid, hydrogen peroxide, sodium chloride etc.

The facility can generate an MRSL Performance InCheck report by uploading their CIL to the ZDHC Gateway using any **ZDHC Approved Solution Provider**, such as:

- 4sCHEM+ by YMPACT Srl Società Benefit;
- BHive® by GoBlu International Ltd;
- BVE3 by Bureau Veritas;
- CleanChain by ADEC;
- ToxClear by Intertek.

2.3 Chemical Supplier

Chemicals which are uploaded to the ZDHC Gateway Chemical Module with a conformance level 1 or above, will be accepted.

It is the responsibility of the chemical supplier to have available on request:

1. Safety Data Sheet
2. Up-to-date information on the compliance of their formulations with the MRSL.
3. In-house or third-party test reports to confirm their claims.

2.4 Componentry Suppliers

It is the responsibility of the componentry supplier to ensure:

1. That they have a robust sourcing policy in place.
2. They seek confirmation from their suppliers that their products comply with the MRSL and RSL
3. They are compliant with the MRSL and RSL.

Suppliers who are not required under M&S policy to complete an ECP self-audit may be requested to complete a declaration of compliance, stating their products are compliant with the MRSL, RSL and relevant legal requirements. Additional chemical testing may also be requested as proof of compliance.

3. Manufacturing Restricted Substances List

M&S has adopted the ZDHC Manufacturing Restricted Substances List ([ZDHC MRSL](#)), 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 is used deliberately in a chemical product to achieve a desired look or functionality.

The ZDHC MRSL goes beyond the traditional approaches to chemical restrictions, which only apply to finished products (Restricted Substances List - RSL) and is focused on consumer safety. 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.

Using chemical formulations that conform to the ZDHC MRSL allows suppliers to assure themselves, and their customers, that banned chemical substances are not intentionally used during production and manufacturing processes.

The ZDHC MRSL can be found online:

<https://mrslroadmaptozero.com/>

A pdf version of the ZDHC MRSL is also available to view on Origin.

3.1 Implementation and Compliance

The purpose of the ZDHC MRSL is to prevent suppliers using restricted or banned chemicals in the production of apparel & footwear products.

It is possible that some chemicals may be used within the manufacturing process which may not be present on the final product as identified in RSL testing, but are still of concern to worker safety and the environment.

In general, the MRSL reflects the requirements of the RSL, and therefore compliance with the MRSL will help with overall conformity to the RSL.

The MRSL **does not replace** the RSL meaning compliance with the RSL is also required as part of the ECP.

The MRSL **does not replace** applicable national and local environmental or workplace safety restrictions.

3.2 Non-Compliance with the MRSL

Compliance with the MRSL is a minimum requirement for overall conformity with the ECP. If a supplier fails to comply they may be fined or M&S may reject the product. M&S reserve the right to Return to Manufacturer (RTM) the product at the supplier's cost.

3.2.1 Examples of non-compliance

MRSL non-compliance means that:

- A formulation contains listed chemicals greater than the specified limits.
- The chemical supplier has not disclosed the formulation limits.
- In the case of non-compliance, please contact the relevant M&S Technologist immediately for advice.

4. Restricted Substances List

4.1 Implementation and Compliance

The M&S Restricted Substance List (RSL) specifies the residual limits of hazardous chemicals allowed on the finished product. The RSL applies to all finished goods produced for M&S and is presented in **Table 2**.

The RSL is compiled according to chemical legislation in the UK, EU, and M&S global markets, and reflects M&S's policy in proactively phasing out certain chemicals as outlined in the MRSL. It is important to note that chemical legislation is extensive and updated on a regular basis, so it's important to understand the restrictions on chemical substances used in your facility and products.

In the RSL table, details are provided of the chemical, its risk, acceptable levels of presence **in the finished product**, and the preferred test method for identification and quantity present.

4.2 Registration, Evaluation, Authorisation and restriction of CHemicals (REACH)

UK REACH is a regulation that applies to most chemical substances that are manufactured in or imported into Great Britain (GB) (England, Scotland, Wales)¹.

This can be:

- A substance on its own
- A substance in a mixture, for example ink or paint
- A substance that makes up an 'article' - an object that is produced with a special shape, surface or design, for example a car, furniture or clothes.

REACH stands for registration, evaluation, authorisation and restriction of chemicals.

UK REACH has replaced EU REACH since the UK left the European Union (EU). M&S also sells products in the EU so it is important that all products comply with both EU and UK REACH regulations. The UK REACH and the EU REACH regulations operate independently from each other. Suppliers must ensure they comply with both regulations where necessary.

REACH has separate chemical guidance documents:

- **SVHC candidate list:** The Candidate List is the list of substances that have been

¹ <https://www.hse.gov.uk/reach/about.htm>

identified as Substances of Very High Concern (SVHCs). The presence of a substance on the Candidate List triggers immediate supply chain communication obligations for article suppliers:

- **Article 33** - Any supplier of an article containing a Candidate List substance in a concentration above **0.1% (w/w)** has the duty to provide the recipient of the article with sufficient information to allow safe use of the article. This information also needs to be provided to consumers within 45 days of a request.
- **Article 7** - Possible additional notification obligations for importers and producers of articles.
- **UK & EU REACH authorisation list (XIV) & RSL (XVII):**
 - **Annex XIV** - Authorisation is the protocol within REACH for identifying and controlling the use of Substances of Very High Concern (SVHCs) with the longer-term aim of finding alternatives. Substances that are included in the Authorisation List cannot be manufactured or imported into the EU after a designated sunset date, except if the companies have obtained an authorisation for their specific use(s). Manufacturers, importers, and downstream users will need to apply for Authorisation at the latest 18 months before the sunset date or apply for a specific use if the substance is already authorised.
 - **Annex XVII** - Contains the list of restrictions on certain hazardous substances, mixtures and articles for their marketing and use on the European market.

NOTE: The use of products or preparations containing Substances of Very High Concern (SVHCs) as listed on the current edition of REACH is not permitted by Marks & Spencer where viable alternatives are available. M&S must be notified of the presence of any SVHCs in product at the time of contract, which must be less than 0.1% W/W (1000ppm).

4.3 About the Restricted Substance List:

The purpose of the RSL is to provide suppliers with information on restricted or banned chemicals in finished products based on up-to-date laws and regulations. M&S conducts a thorough assessment of UK and EU legislation and other regulations to create the M&S RSL, including:

- The ZDHC MRSL.
- Registration, Evaluation, Authorization and restriction of Chemicals (REACH) SVHC Candidate List and Annex XVII. (UK & EU)
- Apparel and Footwear International RSL Management (AFIRM).
- OEKO-TEX Standard 100.
- Proposition 65 list (California).
- SATRA Consumer Products RSL.
- Bluesign RSL.
- American Apparel & Footwear Association's (AAFA) RSL.

Where possible, the RSL includes all chemical groups that might be used in the dyeing and finishing of M&S products. However, there are thousands of chemicals in use in the

industry so it is the responsibility of the supplier to ensure regulatory compliance of their products.

4.3.1 Using the RSL Table

The RSL table is divided into chemical groups and provides information about where these chemicals might be present in production and the recommended limits in formulations. **Table 1** summarises how to use the RSL, the RSL is presented in **Table 2**.

Table 1 How to use the RSL Table

Table header	Description
CAS Number	
Chemical name	The commonly used name for this chemical. Synonyms can be cross checked using the CAS number.
Supplier Guidance	Most chemicals are set at “no deliberate use”. In some cases, “consent required” is specified which indicates that this chemical is not expected to be found in a particular substrate without consent.
What M&S products are most likely to be affected?	Indicates which substrates the chemical could be used in, such as textiles, leather, or polymers (Rubber, Foam, Adhesives (RFA)).
What is the origin of the controlled chemical?	Indicates if the chemical is part of deliberate application or a byproduct of production.
Why is it banned or restricted?	Outlines the hazardous properties of the chemical.
Maximum limit on finished product	States the limit of which the chemical is allowed to be present on the finished product.
Practical Limit of Detection	Is the lowest quantity of the chemical that can reliably be detected by a specific instrument and test method.
Preferred test method	The recommended method for extraction and analysis. Where appropriate an EN ISO test method will be specified.

4.4 Due Diligence Testing

To ensure ongoing compliance with the RSL, M&S carries out random, unannounced due diligence testing of product. If any product is found to be non-compliant with the RSL, there is a fine chargeable to the Garment Maker. M&S reserve the right to RTM the product at the supplier’s cost. In cases where non-compliance leads to a product recall, associated responsibilities or charges will be applied to the Garment Maker.

We expect that suppliers will carry out appropriate, risk based due diligence testing to ensure compliance with the RSL and should ensure that their suppliers also carry out due diligence testing as appropriate. Please refer to **Section 4.5** for a comprehensive risk assessment guide.

There are thousands of chemicals that are not mentioned in the RSL that are known to be harmful to humans or the environment. They are not mentioned in the RSL as there is little chance that they would ever be used on the type of products M&S sell, however, M&S do not expect any harmful chemicals to be present in their products.

M&S will continue to encourage suppliers to not use harmful chemicals in M&S products and promote the use of safer technologies.

Table 2 Restricted Substance List

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
Registration, Evaluation, Authorisation and Restriction of chemicals (REACH): The use of products or preparations containing Substances of Very High Concern (SVHCs) as listed on the current edition of REACH is not permitted by Marks & Spencer where viable alternatives are available. M&S must be notified of the presence of any SVHCs in product at the time of contract, which must be less than 0.1% W/W (1000ppm).								
Acidic and Alkaline Substances								
N/A	pH value	Control in production	All	Acidity or alkalinity arising from the final process	Extreme values can cause skin irritation	Textiles: 4.0 – 7.5 Chrome-tanned leather: 3.2 – 4.5 Other: 3.5 – 7.0	N/A	Textiles and synthetic coated fabrics: EN ISO 3071:2020 Leather: EN ISO 4045:2018
Aldehydes								
Formaldehyde notes: No formaldehyde to be used in Childrens products, including adding and washing off. Any exceptions to be discussed and agreed in advance with the departmental technologist and must meet relevant limits. Exception: Childrens non-iron school shirts and products containing metallised fibres – limits as adults – Free 75ppm.								
50-00-0	Formaldehyde	Adults - Restricted use Not permitted in any Childrenswear	Resinated Cotton and Viscose. Metallised fibre yarns	Most found in resinated products (and in lower levels in fixing agents for cotton and nylon) including Non-iron and Easy to Iron finishes. Used as a fixative in metallised fibre yarns. Present in some printing binders.	Known irritant to skin and mucous membranes. Reclassified as carcinogen by WHO	Adults: Free - 75 ppm Childrenswear & Baby: Free 15 ppm (contamination)	15 ppm	Textiles: ISO 14184-1 (2011) Leather: EN ISO 17226-2 (2019) with EN ISO 17226-1 (2021) confirmation method in case of interferences
Alkylphenols (APs) and Alkylphenol Ethoxylates (APEOs) including all isomers								
APEO technical notes: Refer to Chemical Guidance and Best Practice for APEOs and APs of the Environmental & Chemical Policy for Textile Processing.								
104-40-5 84852-15-3 11066-49-2 25154-52-3	Nonylphenol (NP)	No deliberate use	All	In widespread use as detergents, wetting agents, and as emulsifying agents	PBT Endocrine disruptors (sex change chemicals) for aquatic species	Total APs (NP + OP): 10 ppm Total APs + APEOs: 100 ppm	Total of NP + OP: 3 ppm	Textiles and Leather: EN ISO 21084:2019 Polymers and all other materials: 1g sample/20 mL THF, sonication for 60 minutes at 70° C, analysis according to EN ISO 21084:2019
27193-28-8 140-66-9 1806-26-4	Octylphenol (OP)							
127087-87-0 26027-38-3 37205-87-1 68412-54-4 9016-45-9	Nonylphenol ethoxylates (NPEO)						Total of NPEOs + OPEOs: 20 ppm	All materials except Leather: EN ISO 18254-1:2016 with determination of APEO using LC/MS or LC/MS/MS

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
9002-93-1 9036-19-5 68987-90-6	Octylphenol ethoxylates (OPEO)							Leather: Sample prep and analysis using EN ISO 18218-1:2023 with quantification according to EN ISO 18254-1:2016
Azo-amines and Arylamine Salts								
See Appendix 1	Azo-amines and Arylamine Salts	No deliberate use	All	Banned amines listed in ZDHC MRSL	Dyes can split to form carcinogenic amines	20 ppm each	5 ppm each	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
Bisphenols								
80-05-7	Bisphenol A (BPA)	No deliberate use	Natural Leather, Synthetic Fibers, and Natural-Synthetic Blends	Used in the production of epoxy resins, polycarbonate plastics, flame retardants, PVC, polyamide dye-fixing agents, and sulfone- and phenol-based leather tanning agents	Possible health effects on the brain and prostate gland of foetuses, infants, and children. Possible link between BPA and increased blood pressure, type 2 diabetes, and cardiovascular disease	1 ppm each	0.1 ppm Composite samples: 1 ppm	Leather: EN ISO 11936:2023
1478-61-1	Bisphenol AF (BPAF)							All other materials: Extraction: 1g sample/20 mL THF, sonication for 60 minutes at 60° C, then add methanol or acetonitrile for precipitation prior to analysis with LC/MS
77-40-7	Bisphenol B (BPB)							
N/A	Bisphenol D							
620-92-8	Bisphenol F (BPF)							
80-09-1	Bisphenol S (BPS)							
Chlorinated Benzenes and Toluenes								
See Appendix 2	Chlorinated Benzenes and Toluenes	No deliberate use	Polyester	Used to dye polyester and blends at low temperatures in machinery not capable of being pressurised	Various depending on type of carrier - generally toxic, irritants or carcinogens	Total: 1 ppm	0.2 ppm	All materials: EN 17137:2018
95-50-1	1,2-Dichlorobenzene					10 ppm	1 ppm	
Chlorinated Phenols								
See Appendix 3	Chlorinated Phenols	No deliberate use	Cotton and Viscose	Preservative for cotton and viscose. Main risk is on imported greige fabrics. Also used as preservative for print	Highly Toxic	Total: 0.5 ppm	0.05 ppm	All materials except leather: DIN 50009 (2021) Leather: EN ISO 17070

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
				pastes and other chemicals				
Cresols								
1319-77-3	Cresol (all isomers)	No deliberate use	Cotton fabric	Cresol dyes such as cresol red	Carcinogenic	10 ppm each	10 ppm	BVL B 82.02-8 (2001) // Extraction with KOH DIN EN ISO 17070 (2015) // Extraction with KOH
108-39-4	m-Cresol							
95-48-7	o-Cresol							
106-44-5	p-Cresol							
Dyes (Colourants)								
See Appendix 4	Forbidden and disperse	No deliberate use	All	Listed in ZDHC MRSL	Once sensitised to a dye, people can react violently to trace quantities and Carcinogenic	20 ppm each	15 ppm	DIN 54231 (2022)
	Navy Blue	No deliberate use	Synthetic fibres		Carcinogenic			
Flame Retardants								
Flame retardant notes: Flame retardant finishes should only be applied where there is a legislative need and with written consent from M&S. Penta, Hexa, Octa and Deca-brominated types must not be deliberately applied and must not be present above 5 ppm.								
See Appendix 5	Flame Retardants	No deliberate use	Cotton	Deliberate application on fabrics	Depends on exact chemistry - Toxic, not biodegradable and suspected health risks	5 ppm each	5 ppm	EN ISO 17881-1 (2016) for brominated flame retardants EN ISO 17881-2 (2016) for phosphorus flame retardants
Flame Retardants - Chlorinated Paraffins								
85535-85-9	Medium-chain Chlorinated Paraffins (MCCPs) (C14-C17)	No deliberate use	Leather, Natural and Coated	Used in flame retardants, plasticisers, adhesives. Fat liquoring agent in leather processing.	Toxic to aquatic organisms	100 ppm	100 ppm	All materials except leather: ISO 22818 (2021) Leather: ISO 18219 (2021)
85535-84-8	Short-chain Chlorinated Paraffins (SCCPs) (C10-C13)							
Fluorinated Greenhouse Gases								
See Appendix 6 ((EU) No 517/2014)	Fluorinated Greenhouse Gases	No deliberate use	Products with flame retardants	May be used as foam blowing agents, solvents, fire retardants, and aerosol propellants.	Global Warming Potential	No intentional use	0.1 ppm	Sample preparation: Purge and trap — thermal desorption or SPME Measurement: GC/MS
Glycols / Glycol Ethers								
110-80-5	2-Ethoxyethanol; Ethylene glycol monoethyl ether (EGEE)	No deliberate use	All	Solvents for finishing / cleaning, printing	Toxic to reproduction	5 ppm each	5 ppm	GC-MS // Extraction with Methanol

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
111-15-9	2-Ethoxyethyl acetate; Ethylglycol acetate; Ethylene glycol monoethyl ether acetate			agents and dissolving and diluting fats, oils, and adhesives (e.g. in degreasing or cleaning operations)				Plastic articles: 2-Step extraction with THF and Methanol
109-86-4	2-Methoxyethanol; Ethylene glycol monomethyl ether (EGME)							
110-49-6	2-Methoxyethyl acetate; Methylglycol acetate; Ethylene glycol monomethyl ether 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 (TEGDME)							
Halogenated Biphenyls, halogenated Terphenyls and halogenated Naphthalenes								
Several	Polybrominated Naphthalenes	No deliberate use	All	Used in Flame retardants, plasticizers, coatings and inks.	Persistent Organic Pollutant	Total: 1 ppm	1 ppm	Brominated compounds: EN ISO 17881-1 (2016) Chlorinated compounds: ISO/TR 17881-3 (2018)
Several	Polybrominated Terphenyls					Total: 1 ppm		
1336-36-3	Polychlorinated Biphenyls (PCBs)					Total: 1 ppm		
Several	Polychlorinated Naphthalenes					1 ppm each		
61788-33-8	Polychlorinated Terphenyls	No deliberate use	All		Skin Sensitizing, Toxic, Harmful to Aquatic life	Total: 1 ppm	1 ppm	GC-MS // Extraction following DIN EN 62321-6 (2016)
99688-47-8	Monomethyl-dibromo-diphenyl methane					1 ppm each		
81161-70-8	Monomethyl-dichloro-diphenyl methane							
76253-60-6	Monomethyl-tetrachloro-diphenyl methane							
Heavy Metals (All Materials, non-jewellery)								
The figures contained in this section refer to M&S acceptable limits of heavy metals on finished materials and articles, including textiles, leather, plastics and metals - e.g. fabric, leather, zips, snaps, buttons, coatings.. There is specific legislation relating to some metals in all end uses (e.g. Cadmium Directive) and legislation for metals in toys (EN71). Please note that acceptable limits in EN71 (Appendix 12) are significantly higher than for M&S textiles - the standards in this ECP document apply to M&S textile-based toys. Metal is used as an integral part of some dye chromophores to impart technical performance. Where metal-free dyes will meet M&S performance requirements these should be used as the preferred option.								
7440-36-0	Antimony (Sb)	Restricted	All	Found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.	Toxic	Extractable: 30 ppm	Extractable: 3 ppm	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
7440-38-2	Arsenic (As)	Restricted	All	Arsenic and its compounds can be used in preservatives, pesticides, and defoliants for cotton, synthetic fibers, paints, inks, trims, and plastics.	Toxic	Extractable: 0.2 ppm Total: 100 ppm	Extractable: 0.1 ppm Total: 10 ppm	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Total: All materials except leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2019
7440-39-3	Barium (Ba)	Restricted	All	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.	Toxic	Extractable: 1000 ppm	Extractable: 100 ppm	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019
7440-43-9	Cadmium (Cd)	Restricted	All	Cadmium compounds are used as pigments (especially in red, orange, yellow and green); as a stabilizer for PVC; and in fertilizers, biocides, and paints.	Toxic	Extractable: 0.1 ppm Total: 40 ppm	Extractable: 0.05 ppm Total: 5 ppm	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Total: All materials except leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2019
7440-47-3	Chromium (Cr)	Restricted	All	Chromium compounds can be used as dyeing additives; dye-fixing agents; colourfastness aftertreatments; dyes for wool, silk, and polyamide (especially dark shades); and leather tanning.	Toxic	Textiles Extractable: 1 ppm Chrome tanned Leather Extractable: 200 ppm	Extractable: 0.5 ppm	Textiles: DIN EN 16711-2:2016 Leather: EN ISO 17072-1:2019
18540-29-9	Chromium (VI); Hexavalent Chromium (CrVI)	Consent required	Wool, (Cashmere, Angora), Leather	Though typically associated with leather tanning, Chromium VI also may be used in the "after-chroming" process for wool dyeing (Chrome salts	Highly toxic / carcinogenic both to humans and aquatic species	Extractable: Leather: 3 ppm Textiles: 1 ppm	Extractable: Leather: 3 ppm Textiles: 0.5 ppm	Textiles: DIN 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 the extract causes interference. Alternatively, EN ISO 17075-2:2017

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
				applied to acid-dyed wool to improve fastness).				may be used on its own. Ageing test: ISO 10195:2018 Method A2 is used at brand discretion.
7440-48-4	Cobalt (Co)	Restricted	All	Cobalt and its compounds can be used in alloys, pigments, dyestuff, and the production of plastic buttons.	Skin & respiratory sensitising	Extractable: Adults: 4 ppm Children & infants: 1 ppm	Extractable: 0.5 ppm	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019
7440-50-8	Copper (Cu)	Restricted	All	Copper and its compounds can be found in alloys and pigments, and in textiles as an antimicrobial agent.	Toxic	Extractable: Adults: 50ppm, Children & Infants: 25ppm	Extractable: 5 ppm	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019
7439-92-1	Lead (Pb)	Restricted	All	Maybe associated with plastics, paints, inks, pigments, and surface coatings.	Toxic	Extractable: Adults: 1 ppm Children and babies: 0.2 ppm Total: 90 ppm	Extractable: 0.2 ppm Total: 40 ppm	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Total: All materials except leather: DIN EN 16711-1 (2016) Leather: EN ISO 17072-2 (2019)
7439-97-6	Mercury (Hg)	No deliberate use	Cotton	Mercury compounds can be present in pesticides and as contaminants in caustic soda (NaOH) made by the mercury cell process. They may also be used in paints.	Highly toxic	Extractable: 0.02 ppm Total: 0.5 ppm	Extractable: 0.02 ppm Total: 0.1 ppm	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Total: All materials except leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2019
7440-02-0	Nickel (Ni)	Restricted No deliberate use in childrens and baby products	All	Nickel and its compounds can be used for plating alloys and improving corrosion-resistance and hardness of alloys.	Allergenic	Extractable: 1 ppm Release (metal parts):	Extractable: 0.1 ppm Release: 0.5µg/cm²/	Extractable: All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 Release: EN 12472:2020 and EN 1811:2023

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
				They can also occur as impurities in pigments and alloys.		Prolonged skin contact: 0.5µg/cm²/ week Eyewear frames: 0.5µg/cm²/ week	week	Release (eyewear frames): EN 16128:2015
7782-49-2	Selenium (Se)	Restricted	All	Maybe found in synthetic fibres, paints, inks, plastics and metal trims.	Toxic	Extractable: 500 ppm	Extractable: 50 ppm	All materials except leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019
Heavy Metals (Jewellery)								
The figures contained in this section refer to M&S acceptable limits of heavy metals on jewellery only. For all other Heavy Metals limits, please refer to the above limits for All materials. There is specific legislation relating to some metals in all end uses (e.g. Cadmium Directive). Please refer to Appendix 12 for the full list of metals restricted in EN71 (for further information, also refer to the Nickel Policy and Childrenswear Safety Manual).								
7440-36-0	Antimony (Sb)	Restricted	All	Can be used as a flame retardant in paints, as well as a colorant in pigments.	Toxic	Paints & Coatings: Extractable: 60 ppm	Extractable: 5 ppm	ASTM F963-17 as referenced in ASTM F2923:2020
7440-38-2	Arsenic (As)	Restricted	All	Can be used in paints and inks.		Paints & Coatings: Extractable: 25 ppm	Extractable: 5 ppm	ASTM F963-17 as referenced in ASTM F2923:2020
7440-39-3	Barium (Ba)	Restricted	All	Can be used in pigments for inks.		Paints & Coatings: Extractable: 1000 ppm	Extractable: 100 ppm	ASTM F963-17 as referenced in ASTM F2923:2020
7440-43-9	Cadmium (Cd)	Restricted	All	Can be used as pigments (especially in red, orange, yellow, green); as a stabilizer for PVC; in fertilizers, biocides, and paints.		Substrates, Paints & Coatings: Total: Adults: 75 ppm Children: 40 ppm	Total: 5 ppm	ASTM F963-17 as referenced in ASTM F2923:2020
7440-47-3	Chromium (Cr)	Restricted	All	Can be used as pigments in paints. It can also be used as part of alloys such as stainless steel.		Paints & Coatings: Extractable: 60 ppm	Extractable: 5 ppm	ASTM F963-17 as referenced in ASTM F2923:2020

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
7439-92-1	Lead (Pb)	Restricted	All	May be associated with plastics, paints, inks, pigments and surface coatings. May be present in metal parts of Jewellery		Substrates, Paints & Coatings: Total: 90 ppm	Total: 10 ppm	ASTM F963-17 as referenced in ASTM F2923:2020
7439-97-6	Mercury (Hg)	Restricted	All	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.	Highly Toxic	Paints & Coatings: Extractable: 60 ppm	Extractable: 5 ppm	ASTM F2923:2020 as referenced in ASTM F2923:2020
7440-02-0	Nickel (Ni)	Restricted No deliberate use in childrens and baby products	All	Can be used for plating alloys and improving corrosion-resistance and hardness of alloys. They can also occur as impurities in pigments and alloys.	Allergenic	Release (metal parts): Prolonged skin contact: 0.5 µg/cm ² /week Pierced part: 0.2 µg/cm ² /week	Release: 0.1 µg /cm ² /week	EN 12472:2020 and EN 1811:2023
7782-49-2	Selenium (Se)	Restricted	All	May be found in paints and inks.	Toxic	Paints & Coatings: Extractable: 500 ppm	Extractable: 50 ppm	ASTM F2923:2020 as referenced in ASTM F2923:2020
Monomers & Polymers								
79-06-1	Acrylamide	Restricted	All	Used in pH regulators and water treatment products.	Toxic and can cause skin irritation	1 ppm	1 ppm	CEN/TS 13130-10 (2005)
110-82-7	Cyclohexane	Restricted	All			1 ppm	1 ppm	GC-MS Headspace
100-42-5	Styrene, Free	Restricted	Present in various Styrene copolymers e.g. plastic buttons.	A precursor for polymerization, primarily used in the production of polystyrene plastics and resins	Known irritant to skin and mucous membranes. Toxic to reproduction	50 ppm	50 ppm	Solvent Extraction & GCMS Analysis
9002-86-2	Polyvinyl chloride (PVC)	No deliberate use	Artificial leather and some coating/print s used in textile		Birth defects in baby boys, testicular cancer, liver problems, and early onset of puberty in girls	No intentional use	1 ppm	Total chlorine (EN 14582) // FTIR (when chlorine detected)
75-01-4	Vinyl Chloride	No deliberate use		Monomer of PVC		No intentional use	1 ppm	EN ISO 6401:2022

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
N-Nitrosamines								
612-64-6	N-nitroso N-ethyl N-phenylamine (NEPhA)	No deliberate use	Vulcanised rubber	Can be formed as by-product in the production of rubber.	Carcinogenic	0.5 ppm each	0.5 ppm each	EN ISO 19577:2019 with LC/MS/MS verification if positive
614-00-6	N-nitroso N-methyl N-phenylamine (NMPHA)							
5336-53-8	N-Nitrosodibenzylamine							
924-16-3	N-nitrosodibutylamine (NDBA)							
55-18-5	N-nitrosodiethylamine (NDEA)							
62-75-9	N-nitrosodimethylamine (NDMA)							
621-64-7	N-nitrosodipropylamine (NDPA)							
59-89-2	N-nitrosomorpholine (NMOR)							
100-75-4	N-Nitrosopiperidine (NPIP)							
930-55-2	N-nitrosopyrrolidine (NPYR)							
Organotin Compounds								
See Appendix 7	Organotin Compounds	No deliberate use	All	Preservative for fabrics and chemical formulations. Occasionally used as stabilizers and catalysts	Tributyl tin is highly toxic, and related products have toxicity issues	0.5 ppm each	0.1 ppm each	CEN ISO/TS 16179:2012 or EN ISO 22744-1:2020
Ozone-depleting Substances								
Several ((EC) No 1005/2009)	Ozone depleting substances (CFCs) class I to class VIII	No deliberate use	Leather and polyester	Is used for its preservative properties in leather or as a carrier in polyester dyeing processes.	May cause kidney failure	No intentional use	5 ppm	GC/MS headspace 120° C for 45 minutes
Per and Polyfluoroalkyl substances (PFAS)								
Various (Please see ZDHC MRSL and AFIRM RSL 2025)	Perfluorooctane Sulfonate (PFOS) and its salts	Banned for use in apparel and footwear.	All	PFOA and PFOS may be present as unintended byproducts in long-chain and short-chain commercial water-, oil-, and stain-repellent agents. PFOA may also be used in polymers like Polytetrafluoroethylene (PTFE).	Proven health risks, and persistent in the environment	25 ppb total	25 ppb	EN ISO 23702-1:2023 or EN17681-1:2025 & 17681-2:2022 Note: using the updated extraction method in EN17681-1, significantly higher findings of various PFAS analytes are possible, especially FTOHs. Review all PFAS-free finishes and facility segregation processes to confirm compliance. Useful guide to PFAS Phaseout:
	PFOS-related Substances					1000 ppb total	1000 ppb	
	Perfluorooctanoic acid (PFOA) and its salts					25 ppb total	25 ppb	
	PFOA related substances					1000 ppb total	1000 ppb	
	Perfluorohexane sulfonic acid (PFHxS) and its salts					25 ppb total	25 ppb	
	PFHxS related substances					1000 ppb total	1000 ppb	
	C9-C14 Perfluorocarboxylic acids (PFCAs) and their salts					25 ppb total	25 ppb	
	C9-C14 PFCA related substances					260 ppb total	260 ppb	
	Perfluorohexanoic acid (PFHxA), and its salts					25 ppb total	25 ppb	

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
	PFHxA related substances					1000 ppb total	1000 ppb	Total Organic Fluorine: EN 14582:2016
	All PFAS as measured by total organic fluorine					100 ppm	50ppm total	
Pesticides, Herbicides and Biocides								
Biocides: Independent from the biocidal substances listed in the RSL, the supplier shall always be requested to declare whether biocides were used or not. Identity of the relevant biocides shall be disclosed by name and CAS No. Declaration duty shall be laid down in the purchase specification. The M&S Biocide Policy is available on Origin .								
See Appendix 8	Pesticides and Herbicides	No deliberate use	Wool and Cotton	Used to protect sheep and cotton crops from parasite infestation.	Toxic & Carcinogenic	0.5 ppm each	0.5 ppm each	All materials: EN ISO 15913:2003 or EPA 8081/EPA 8151A or BVL L 00.00-34:2010-09
90-43-7	Ortho-phenylphenol (OPP)	Restricted	Leather and polyester	Is used for its preservative properties in leather or as a carrier in polyester dyeing processes.	May cause kidney failure	50 ppm		DIN 50009 (2021)
624-49-7	Dimethylfumarate (DMFu)	Not permitted for use in any M&S products	Leather for furniture, footwear, or accessories etc.	Used as mould prevention on leather. Silica gel sachets may also contain banned DMFu to stop mould growth in transit.	Causes severe irritation when in human skin contact	0.1 ppm (ND)		ISO 16186 (2021)
PhthalatesE								
See Appendix 9	Phthalates	No deliberate use	PVC mock leather and plastisol prints	Used as a plasticizer to soften rigid PVC and other plastics. Also found in Print Pastes, Adhesives, Plastic buttons, Plastic sleeving, Polymeric coatings - See listed phthalates in MRSL.	Suspected sex change chemicals / suspected carcinogen	Each: 100 ppm Total: 250 ppm	50 ppm	Textile: EN ISO 14389 (2014) Other: CPSC-CH-C1001-09.4
Polycyclic Aromatic Hydrocarbons (PAHs)								
See Appendix 10	Polycyclic Aromatic Hydrocarbons (PAHs)	No deliberate use	Footwear outsoles, screen prints	Oil residues containing PAHs are used to soften rigid rubber and plastic materials. Can be found in print pastes.	Toxic. Some PAHs are carcinogens	Total: 10 ppm	0.2 ppm	AfPS GS 2019 Alternative test methods: EN17132 or ISO 16190
50-32-8	Benzo[a]pyrene (BaP)					1 ppm		
Siloxanes								

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
541-02-6	Decamethylcyclopentasiloxane (D5)	No deliberate use	Silicone Printed Products	Main component in liquid silicone rubbers (LSR)	Toxic	200 ppm	30 ppm	GC // with reference to TEGEWA method (2021)
540-97-6	Dodecamethylcyclohexasiloxane (D6)					200 ppm		
556-67-2	Octamethylcyclotetrasiloxane (D4)					30 ppm		
Solvents and Residuals								
75-09-2	Dichloromethane (Methylene chloride)	Usage ban for direct use in manufacturing of articles.	All	Used as finishing/ cleaning and printing agents, for dissolving/ diluting fats, oils, and adhesives (e.g. in degreasing or cleaning operations).	Carcinogen	5 ppm	5 ppm	GC-MS // Headspace
68-12-2	Dimethylformamide (DMFa)	By consent	PU coated fabrics	Used in plastics, rubber, and solvent-based polyurethane coating. Use water-based alternatives where possible.	Toxic to reproduction	500 ppm	5 ppm	Textiles: EN 17131 (2019) Leather: EN ISO 19070 (2016) Other: ISO 16189 (2021)
127-19-5	N,N-dimethylacetamide (DMAC)	By consent	Elastane fibres	Solvent used in the production of elastane fibres and sometimes as substitute for DMFa.	Neurotoxin	5 ppm		
2687-91-4	N-Ethyl-2 pyrrolidone (NEP)	No deliberate use	Elastane fibres	Used as an organic solvent for textile auxiliaries	Can cause skin irritation	10 ppm		
872-50-4	N-Methyl-2-Pyrrolidone (NMP)	By consent	Elastane fibres	Solvent used in the production of elastane fibres and sometimes as substitute for DMFa.	May affect the brain	10 ppm		
UV Absorbers / Stabilizers								
36437-37-3	2-(2Hbenzotriazol-2-yl)-4-(tert-butyl)-6-(secbutyl) phenol (UV-350)	No intentional use	PU foam materials, plastics, rubber, polyurethane	These are frequently used in formulations to be stable to the influences of light and UV	Persistent, Bioaccumulative and Toxic.	1000 ppm each	100 ppm each	ISO 24040:2022 with extraction in THF, analysis by GC/MS
25973-55-1	2-(2Hbenzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)							
3864-99-1	2,4-Di-tert-butyl-6- (5-chlorobenzotriazole-2-yl) phenol (UV-327)							
3846-71-7	2-Benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)							

CAS No.	Chemical	Supplier Guidance	M&S products most likely to be affected	Origin of the controlled chemical	Reason for ban or restriction	Maximum limit on finished product	Practical Limit of Detection (LOD)	Preferred test method
2440-22-4	Drometrizole			Used as UV Absorbers for Plastics (PVC, PET, PC, PA, ABS, and other Polymers), Rubber, and Polyurethane.				
Volatile Organic Compounds (VOCs)								
Organic solvent technical notes: Where solvents are used suppliers should always work to change to water-based alternatives. Where this is not possible e.g. dry pigment discharge printing there must be adequate extraction of fumes, good ventilation, and workers must be provided with appropriate Personal Protective Equipment. Solvents are permitted for scouring greige, but these must be in fully enclosed zero emission systems. No residual solvent is permitted on any finished product. Trichloroethylene is classified as a carcinogen (REACH article 57a). It can be found in preparations for spot cleaning, and the MSDS may quote one of many synonyms used for trichloroethylene. Do not use the product if it has the CAS number 79-01-6. Alternative preparations for spot cleaning ,e.g. citrus- or water-based products are recommended.								
630-20-6	1,1,1,2-Tetrachloroethane	Consent required	Panel Printed or solvent-scoured fabrics. Adhesives	Used in some adhesives, print formulations, solvent scouring, and spot cleaning	Various depending on type of solvent	Total: 1000 ppm	20 ppm each	For general VOC screening: GC/MS headspace 45 minutes at 120° C
71-55-6	1,1,1-Trichloroethane							
79-34-5	1,1,2,2-Tetrachloroethane							
79-00-5	1,1,2-Trichloroethane (Vinyl trichloride)							
75-35-4	1,1-Dichloroethylene (Vinylidene chloride)							
107-06-2	1,2-Dichloroethane (Ethylene dichloride)							
75-15-0	Carbon Disulfide							
56-23-5	Carbon Tetrachloride							
67-66-3	Chloroform							
108-94-1	Cyclohexanone							
513-37-1	Dimethylvinylchloride							
100-41-4	Ethylbenzene							
108-38-3	m-Xylene							
95-47-6	o-Xylene							
76-01-7	Pentachloroethane							
106-42-3	p-Xylene							
127-18-4	Tetrachloroethylene; Perchloroethylene (PERC)							
108-88-3	Toluene							
79-01-6	Trichloroethylene							
1330-20-7	Xylene (all isomers)							
71-43-2	Benzene					5 ppm	5 ppm	
Other/Miscellaneous Chemicals								
See Appendix 11	Other/Miscellaneous Chemicals	Consent required	Varies according to type	Varies according to type	Varies according to type	Limit specified in Appendix 11	LOD specified in Appendix 11	Test Method specified in Appendix 11

4.5 Risk Assessment Matrix

4.5.1 Guidance

In apparel and footwear, certain types of fibres and materials are more likely to contain substances on the RSL. The Risk Assessment Matrix (RAM) presented in **Table 3** gives guidance on where these chemical substances are at risk of being found in M&S products. The information from the matrix can be used in sourcing and preproduction discussions with wet processors to ensure that risk chemicals are identified and eliminated. The table is also used for due diligence testing to select appropriate tests for each substrate.

4.5.2 Risk Categories

Risk categories are assigned based on industry knowledge of manufacturing and managing restricted substances across a wide range of materials. The table indicates where substances have historically been deliberately used or found as contaminants in different materials. For compound materials, please refer to the guidance for each material type and check compliance accordingly e.g., Coated fabric with polymer coating and polyester base fabric.

The follow risk categories are used in the RAM:

- **Red 1:** High risk of use and therefore testing is required;
- **Orange 2:** Medium risk of use and therefore testing is recommended; and,
- **White:** Not expected to be used.

Consideration should also be given to the competence of the wet processing facility and their experience and proficiency in managing chemicals. New facilities, or those with previous non-compliances, should be considered as high risk and be subjected to increased testing.

The information provided in this table is for guidance only and may vary based on the specific supply chain. Use of this table should be accompanied by compliance checks and due diligence testing for chemicals of concern.

Table 3 Risk Assessment Matrix

Substance	Natural Cellulosic Fibres	Wool / Hair fibres	Synthetic Fibres	Natural & Synthetic Blends	Artificial Leather	Natural Leather	Coated Leather	Natural Materials	Metals	Other: Porcelain, Ceramic, Glass, Crystal, etc.	Feathers & Down	Polymers, plastics, foams, natural & synthetic rubber								Coatings & Prints	Glue / Adhesive
												EVA	PU Foams	All other PU & TPU	Rubber Excludes Latex and Silicon Rubbers	Polycarbonate	ABS	PVC	All Other Foams, Plastics & Polymers		
Acetophenone and 2-Phenyl-2-Propanol												2									
Acidic and Alkaline Substances (pH)	1		1	1	1	1															
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs), including all isomers	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1
Azo-amines and Aryl Amine salts	1		1	1	1A	1		1A			1A									1	
Biocidal finishes	Test when biocidal finish is applied																				
Bisphenols			2	2		2						2	2	2	2	1	2	2	2		
Bisphenol-A												1	1	1	1	1	1	1	1		
Chlorinated Paraffins					2	1	1					2	2	1	1	2	2	1	2		
Chlorophenols	2	2	2	2		2	2														
Chlorinated Benzenes and Toluenes			2	2	2																
Dimethylformamide (DMFa)					1															2	
Dimethylfumarate (DMFu)						2	2														
Dyes - Azo	1	1	1	1	1	1	1	1			1									1	
Dyes – Carcinogenic / banned			1	1	1															2	
Dyes - Forbidden and Disperse			1	1	1															2	
Dyes - Navy Blue			2	2																	
Dye carriers			2	2	2																
Flame Retardants	2B		2B	2B	2B	2B		2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B
Formaldehyde	1	1	1	1	2	1	1	1C							2					1	1
Heavy Metals, Chromium VI	2D	1	2E			1	1														
Heavy Metals, Cadmium					2				2			2	2	2	2	2	2	2	2	2	

Substance	Natural Cellulosic Fibres	Wool / Hair fibres	Synthetic Fibres	Natural & Synthetic Blends	Artificial Leather	Natural Leather	Coated Leather	Natural Materials	Metals	Other: Porcelain, Ceramic, Glass, Crystal, etc.	Feathers & Down	Polymers, plastics, foams, natural & synthetic rubber								Coatings & Prints	Glue / Adhesive
												EVA	PU Foams	All other PU & TPU	Rubber Excludes Latex and Silicon Rubbers	Polycarbonate	ABS	PVC	All Other Foams, Plastics & Polymers		
Heavy Metals, Extractable	1	1	1	1	2	1	1		2F	2			2	2	2	2	2	2	2	2	
Heavy Metals, Lead					2				2	2		2	2	2	2	2	2	2	2	2	2
Heavy Metals, Nickel Release							1		1	2											2
Heavy Metals, Total	2G		2G	1	2				1	1H		1	1	1	1	1	1	1	1	1	2
Mothproofing agents		2																			
Monomers, Styrene & Vinyl Chloride															2K		2	1		1J	
N-Nitrosamines															2						
Organotin Compounds			2	2	1	2	2						1	1	1			1	1	1	1
Ortho-phenylphenol (OPP)	2		2	2	2	2															
Per- & Polyfluoroalkyl substances (PFAS)	1L		1L	1L	1L	1L		1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L
Pesticides, Agricultural	2	2				2	2														
pH	1	1	1	1	1	1	1													1	
Phthalates					1		1			1		1	1	1	1	2	2	1	1	1	1
Polycyclic Aromatic Hydrocarbons (PAHs)					2		1					1M	1M	1M	1			1M	1M	1M	1M
Quinoline			2	2																	
Styrene												2	2	2	2	2	2	2	2		
Solvents / Residuals, DMFa					1		1						1	1						1N	1N
Solvents / Residuals, DMAC and NMP					1		1						2	2					2	2	2
Solvents / Residuals, Formamide												2								2	
UV Absorbers / Stabilizers												2	2	2	2	2	2	2	2		
Volatile Organic Compounds (VOCs)					2							2	2	2	2	2	2	2	2	2	1

Notes:	A.	Level 1 for dyed/colored materials.	D.	Level 2 for Wool materials.	H.	Level 1 for Cadmium and Lead only; Crystal is exempt for Lead.	L.	Level 1 if a Water / stain repellent or Fluorinated finish is applied.
	B.	Level 2 if Flame Retardant use or contamination is suspected.	E.	Level 2 if extractable Chrome above 1 ppm.	J.	Level 1 for PVC materials.	M.	Level 1 if Rubber or black Polymeric materials, otherwise Level 2.
	C.	Level 1 for Wood, Paper, and Straw materials.	F.	Copper is exempt from restriction limits in Metal parts.	K.	Level 2 for Styrene/Butadiene Rubbers (SBRs) only.	N.	Level 1 for PU-based materials.
	G.	Level 2 for plant-based fibers; N/A for animal-based fibers.						

5. M&S Specific Chemical Policies

M&S has created individual guidance documents for specific risk chemicals that are listed in the RSL. They are detailed in the following sections.

5.1 Biocidal Finishes

Biocide chemicals are used to treat some M&S products to give anti-bacterial and anti-odour properties, or to act as a preservative. The use of these finishes is permitted where there is a positive and functional benefit for the customer or to maintain the quality of the product.

The use of active biocidal substances to treat articles (products) is regulated under the UK and EU Biocidal Product Regulation (BPR).

M&S has a specific **Biocide Policy** with guidance on regulation, checks and packaging.

5.2 Phthalates and Polyvinyl Chloride (PVC)

Phthalates are a group of chemicals used to make plastics more flexible and harder to break. They are often called plasticizers. Commonly, they are added to plastics to make them soft, increase flexibility, prevent cracking and to facilitate moulding by decreasing its melting temperature.

The use of Phthalates is banned from intentional use in M&S products. This goes further than UK and EU regulation.

To explain in more detail, M&S has a specific **Phthalates chemical policy**.

5.3 Hexavalent Chromium (Chromium VI)

The testing of leather products for the presence of Chromium VI is mandatory.

Though typically associated with leather tanning, Chromium VI may also be used in the “after-chroming” process for wool dyeing. Chromium is widely used in the tanning of leather, and there is a risk of the formation of Chromium VI unless the process is managed well.

The substance has been on the M&S RSL for many years because of the concerns over its carcinogenic, skin sensitizing and allergenic properties.

Further guidance:

AFIRM Chromium V1 Guidance sheet

5.4 Per & Polyfluoroalkyl Substances (PFAS)

All Per- & Polyfluoroalkyl Substances (PFAS) are banned from intentional use in the manufacture of M&S products, apparel, and footwear. These are also referred to historically as Perfluorinated chemicals (PFC) or fluorine based chemicals.

Substances in this chemical group are highly persistent and bio accumulative in the environment and are known to be carcinogenic, toxic to reproduction, and endocrine disruptors.

In textiles and leather, PFAS are typically found in water and stain repellent formulations. There is an industry-wide initiative to withdraw from PFAS chemistry and move to alternative PFAS-free applications. It is recommended that wet processors phase out PFAS chemistry and take steps to eliminate cross-contamination during phase out.

M&S has not permitted the intentional use of PFAS in Clothing and Home (C&H) textiles since 2016.

Further guidance: [AFIRM Phaseout Guidance for Per- & Polyfluoroalkyl Substances \(PFAS\)](#)

5.5 Solvents

Organic solvents are Volatile Organic Compounds (VOC) which are classified by their chemical structure. They are recognised as carcinogenic, toxic to reproduction, and they are classed as neurotoxins.

Where solvents are used, suppliers should always work to change to **water-based alternatives**. Where this is not possible, e.g. dry pigment discharge printing, there must be adequate extraction of fumes, good ventilation, and workers must be provided with appropriate Personal Protective Equipment (PPE).

Solvents are permitted for scouring greige, but these must be applied in fully enclosed zero emission systems.

Organic solvents are used in the textile and footwear industries for a wide range of processes. For example, they can be used in aqueous scouring, dry cleaning, spot cleaning, printing, machine cleaning, coatings, adhesives mould prevention and surface cleaning.

M&S strongly recommends the investigation of alternative products to reduce and eventually eliminate VOCs from the workplace and the product.

Further guidance:

AFIRM Solvents and Residuals Guidance
ZDHC Organic Solvents Guidance

6. Chemical Testing

6.1 Testing laboratories

All tests on M&S products must be conducted by UKAS accredited laboratories or those that operate a mutual recognition scheme such as HOKLAS or COFRAC.

6.2 Test methods

Tests should be conducted using the preferred test method as stated in the RSL (**Table 2**). Standardised methods are marked with the year in which they were updated e.g., BS EN ISO 14184:2011. If revisions to the test method have been made but are not stated in **Table 2**, the most recent update should be followed.

6.2.1 Composite testing

Several samples can be tested together as a composite sample to reduce testing costs. The number of samples that can be combined will depend on the maximum limit and the limit of detection (LOD) for an individual test. The testing laboratory can advise if composite testing can be performed for a specific test method.

If any amount of the restricted chemical is detected, the laboratory will automatically proceed testing of each sample individually.

6.2.2 Limit of Detection (LOD)

For all tests there is a limit of detection (LOD) that the testing laboratory must be able to achieve for the test method. The LOD sometimes varies between labs based on the sensitivity of the equipment they have.

6.2.3 Maximum limit on finished product

Detections of the restricted chemical above the maximum limit on the finished product will be reported as a failure. Chemicals can be detected in amounts that fall into three categories:

- **Background levels** - The amount found in nature.
- **Contamination** - When low levels are present due to contamination of the product.
- **Deliberate application** - When higher levels are present through deliberate application.

Where methods use solvent extraction, the LOD and maximum limits may refer to the extract and not the test fabric or component. In some tests the M&S maximum limit therefore refers to the maximum limit in the solvent extract and not the total amount on the fabric under test.

- **Solvent extraction** - Using a liquid (solvent) to dissolve a target molecule or group of compounds (solute). The solvent is then removed to calculate the solute.

6.3 Test reports

The LOD and the allowed maximum limit should be stated on the testing report with the result. This allows the supplier to investigate the occurrence of the restricted chemical and eliminate them from future use.

7. Appendices

7.1 Appendix 1: Azo-amines and Arylamine Salts

Appendix 1: Azo-amines and Arylamine Salts	
137-17-7	2,4,5-trimethylaniline
21436-97-5	2,4,5-Trimethylaniline hydrochloride
95-68-1	2,4-Xylidine
87-62-7	2,6-Xylidine (2,6-Dimethylaniline)
90-04-0	2-Methoxyaniline (o-Anisidine)
91-59-8	2-Naphthylamine
553-00-4	2-naphthylammonium acetate
91-94-1	3,3'-Dichlorobenzidine
838-88-0	3,3'-dimethyl-4,4'-diaminodiphenylmethane; 4,4'-methylenedi-o-toluidine
119-90-4	3,3'-Dimethoxybenzidine; o-Dianisidine
119-93-7	3,3'-Dimethylbenzidine (ortho-Tolidine)
101-14-4	4,4'-Methylen-bis(2-chloraniline)
139-65-1	4,4'-Thiodianiline
101-80-4	4,4'-Diaminodiphenyl ether; 4,4'-Oxydianiline
101-77-9	4,4'-Diaminodiphenylmethane; 4,4'-Methylenedianiline (MDA)
60-09-3	4-Aminoazobenzene
92-67-1	4-Aminobiphenyl (4-aminodiphenyl)
95-69-2	4-Chloro-2-toluidine
106-47-8	4-Chloroaniline; p-Chloroaniline
95-69-2	4-Chloro-o-toluidine
3165-93-3	4-chloro-o-toluidine hydrochloride
615-05-4	4-Methoxy-m-phenylenediamine; 2,4-Diaminoanisole
39156-41-7	4-methoxy-m-phenylenediammonium sulphate; 2,4-Diaminoanisole sulphate
95-80-7	4-Methyl-m-phenylenediamine; 2,4-Toluenediamine; 2,4-Diaminotoluene
99-55-8	5-Nitro-o-toluidine; 2-Amino-4-nitrotoluene
120-71-8	6-Methoxy-m-toluidine; p-Cresidine
92-87-5	Benzidine
108-44-1	m-Toluidine
97-56-3	o-Aminoazotoluene
95-53-4	o-Toluidine
106-49-0	p-Toluidine

7.2 Appendix 2: Chlorinated Benzenes and Toluenes

Appendix 2: Chlorinated Benzenes and Toluenes	
634-66-2	1,2,3,4-Tetrachlorobenzene
634-90-2	1,2,3,5-Tetrachlorobenzene
87-61-6	1,2,3-Trichlorobenzene
95-94-3	1,2,4,5-Tetrachlorobenzene
120-82-1	1,2,4-Trichlorobenzene
108-70-3	1,3,5-Trichlorobenzene
541-73-1	1,3-Dichlorobenzene
106-46-7	1,4-Dichlorobenzene
1006-32-2	2,3,4,5-Tetrachlorotoluene
76057-12-0	2,3,4,5-Tetrachlorotoluene
875-40-1	2,3,4,6-Tetrachlorotoluene
7359-72-0	2,3,4-Trichlorotoluene
1006-31-1	2,3,5,6-Tetrachlorotoluene
2077-46-5	2,3,6-Trichlorotoluene
32768-54-0	2,3-Dichlorotoluene
6639-30-1	2,4,5-Trichlorotoluene
95-73-8	2,4-Dichlorotoluene
121-14-2	2,4-Dinitrotoluene
19398-61-9	2,5-Dichlorotoluene
118-69-4	2,6-Dichlorotoluene
95-49-8	2-Chlorotoluene
21472-86-6	3,4,5-Trichlorotoluene
95-75-0	3,4-Dichlorotoluene
25186-47-4	3,5-dichlorotoluene
108-41-8	3-Chlorotoluene
106-43-4	4-Chlorotoluene
2136-89-2	a,a,a,2-Tetrachlorotoluene
100-44-7	Alpha-chlorotoluene; Benzyl chloride
23749-65-7	Benzene, 1,3,5-trichloro-2-methyl-
98-07-7	Benzotrichloride (a,a,a-trichlorotoluene)
25168-05-2	Chlorotoluene, unspecific mixture
25167-81-1	Dichlorophenols, all isomers
118-74-1	Hexachlorobenzene (HCB)
108-90-7	Monochlorobenzene
25167-80-0	Monochlorophenols, all isomers
5216-25-1	p-Chlorobenzotrichloride; a,a,a,4-tetrachlorotoluene
608-93-5	Pentachlorobenzene
877-11-2	Pentachlorotoluene

7.3 Appendix 3: Chlorinated Phenols

Appendix 3: Chlorinated Phenols	
4901-51-3	2,3,4,5-Tetrachlorophenol (TeCP)
58-90-2	2,3,4,6-Tetrachlorophenol (TeCP)
15950-66-0	2,3,4-Trichlorophenol (TriCP)
935-95-5	2,3,5,6-Tetrachlorophenol (TeCP)
933-78-8	2,3,5-Trichlorophenol (TriCP)
933-75-5	2,3,6-Trichlorophenol (TriCP)
576-24-9	2,3-Dichlorophenol
95-95-4	2,4,5-Trichlorophenol (TriCP)
88-06-2	2,4,6-Trichlorophenol (TriCP)
120-83-2	2,4-Dichlorophenol
583-78-8	2,5-Dichlorophenol
87-65-0	2,6-Dichlorophenol
95-57-8	2-Chlorophenol
609-19-8	3,4,5-Trichlorophenol (TriCP)
95-77-2	3,4-Dichlorophenol
591-35-5	3,5-Dichlorophenol
108-43-0	3-Chlorophenol
106-48-9	4-Chlorophenol
87-86-5	Pentachlorophenol (PCP), its salts and esters
25167-83-3	Tetrachlorophenol (TeCP), its salts and compounds
25167-82-2	Trichlorophenol, all isomers

7.4 Appendix 4: Dyes

Appendix 4: Dyes	
561-41-1	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol (Solvent Violet 8)
60-11-7	4-Dimethylaminoazobenzene (Solvent Yellow 2)
1320-07-6	C.I. Acid Orange 24
6459-94-5	C.I. Acid Red 114
3761-53-3	C.I. Acid Red 26 (Ponceau MX)
1694-09-3	C.I. Acid Violet 49
2580-56-5	C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)
Several	C.I. Basic Green 4
569-64-2	C.I. Basic Green 4 (Malachite Green Chloride)
2437-29-8	C.I. Basic Green 4 (Malachite Green Oxalate)
10309-95-2	C.I. Basic Green 4 (Malachite Green)
129-73-7	C.I. Basic Green 4 leuco base (Leucomalachite green)
569-61-9	C.I. Basic Red 9
1325-82-2	C.I. Basic Violet 1
8004-87-3	C.I. Basic Violet 1
632-99-5	C.I. Basic Violet 14
548-62-9	C.I. Basic Violet 3 (with Michler's Ketone > 0.1%)
603-48-5	C.I. Basic Violet 3 [2]
14426-25-6	C.I. Basic Violet 3 [3]
1937-37-7	C.I. Direct Black 38
6739-62-4	C.I. Direct Black 91
2429-74-5	C.I. Direct Blue 15
28407-37-6	C.I. Direct Blue 218
2602-46-2	C.I. Direct Blue 6
16143-79-6	C.I. Direct Blue 76
16071-86-6	C.I. Direct Brown 95
573-58-0	C.I. Direct Red 28
6472-91-9	C.I. Direct Yellow 1
2475-45-8	C.I. Disperse Blue 1
12222-97-8	C.I. Disperse Blue 102
12223-01-7	C.I. Disperse Blue 106
61951-51-7	C.I. Disperse Blue 124
3860-63-7	C.I. Disperse Blue 26
83929-84-4	C.I. Disperse blue 291
2475-46-9	C.I. Disperse Blue 3
12222-75-2	C.I. Disperse Blue 35
56524-77-7	C.I. Disperse Blue 35A
56524-76-6	C.I. Disperse Blue 35B
3179-90-6	C.I. Disperse Blue 7
23355-64-8	C.I. Disperse Brown 1
2581-69-3	C.I. Disperse Orange 1
82-28-0	C.I. Disperse Orange 11
85136-74-9	C.I. Disperse Orange 149
730-40-5	C.I. Disperse Orange 3
13301-61-6	C.I. Disperse Orange 37/59/76
51811-42-8	C.I. Disperse Orange 37/59/76
12223-33-5	C.I. Disperse Orange 37/76/59
2872-52-8	C.I. Disperse Red 1

Appendix 4: Dyes	
2872-48-2	C.I. Disperse Red 11
61968-47-6	C.I. Disperse Red 151
3179-89-3	C.I. Disperse Red 17
128-95-0	C.I. Disperse Violet 1
122463-28-9	C.I. Disperse Violet 93
119-15-3	C.I. Disperse Yellow 1
6250-23-3	C.I. Disperse Yellow 23
2832-40-8	C.I. Disperse Yellow 3
12236-29-2	C.I. Disperse Yellow 39
54824-37-2	C.I. Disperse Yellow 49
54077-16-6	C.I. Disperse Yellow 56
10319-14-9	C.I. Disperse Yellow 64
6300-37-4	C.I. Disperse Yellow 7
6373-73-5	C.I. Disperse Yellow 9
12656-85-8	C.I. Pigment Red 104
1344-37-2	C.I. Pigment Yellow 34
6786-83-0	C.I. Solvent Blue 4
6358-53-8	C.I. Solvent Red 80
842-07-9	C.I. Solvent Yellow 14
118685-33-9	Component 1: C ₃₉ H ₂₃ ClCrN ₇ O ₁₂ S ₂ Na
Not allocated	Component 2: C ₄₆ H ₃₀ CrN ₁₀ O ₂₀ S ₂ .3Na

7.5 Appendix 5: Flame Retardants

Appendix 5: Flame Retardants	
134237-52-8	μ-Hexabromocyclododecane
36483-57-5	1-Propanol, 2,2-dimethyl-, tribromo derivatives
1522-92-5	1-Propanol, 2,2-dimethyl-, tribromo derivatives
3296-90-0	2,2-Bis (bromomethyl)-1,3-propanediol (BBMP)
96-13-9	2,3-Dibromopropan-1-ol-(2,3-DBPA)
7025-06-1	2-Bromodiphenyl ether
183658-27-7	2-ethylhexyl-2,3,4,5-tetrabromobenzoate (TBB)
2113-57-7	3-bromobiphenyl
6876-00-2	3-Bromodiphenyl ether
92-86-4	4,4'-dibromobiphenyl
92-66-0	4-bromobiphenyl
101-55-3	4-Bromodiphenyl ether
Various	All other Polybrominated diphenyl ethers (PBDEs)
5412-25-9	Bis(2,3-dibromopropyl) phosphate (BDBPP)
10043-35-3	Boric acid
11113-50-1	Boric acid
13654-09-6	Decabromo-1,1'-biphenyl
84852-53-9	Decabromodiphenyl ethane (DBDPE)
1163-19-5	Decabromodiphenyl ether (DecaBDE)
1303-86-2	Diboron trioxide
Multiple	Dibromobiphenyls (DiBB)
12008-41-2	Disodium octaborate
1303-96-4	Disodium tetraborate, anhydrous
1330-43-4	Disodium tetraborate, anhydrous
68928-80-3	Heptabromodiphenylether (HeptaBDE)
36355-01-8	Hexabromo-1,1'-biphenyl
25637-99-4	Hexabromocyclododecane
3194-55-6	Hexabromocyclododecane (HBCDD)
36483-60-0	Hexabromodiphenylether (HexaBDE)
N/A	Monobromobiphenyls (MonoBB)
N/A	Monobromodiphenyl ethers (MonoBDEs)
27753-52-2	Nonabromo-1,1'-biphenyl
N/A	Nonabromobiphenyls (NonaBB)
63936-56-1	Nonabromodiphenyl ether (NonaBDE)
N/A	Octabromobiphenyls (OctaBB)
32536-52-0	Octabromodiphenyl ether (OctaBDE)
32534-81-9	Pentabromodiphenyl ether (pentaBDE)
59536-65-1	Polybrominated biphenyl (PBB)
12267-73-1	Tetraboron disodium heptaoxide, hydrate
27858-07-7	Tetrabromo(tetrabromophenyl)benzene
79-94-7	Tetrabromobisphenol A (TBBP A)
21850-44-2	Tetrabromobisphenol A bis (2,3-dibromopropylether)
40088-47-9	Tetrabromodiphenylether (TetraBDE)
49690-94-0	Tribromodiphenyl ether (TriBDE)
512-56-1	Trimethyl phosphate
78-30-8	Tri-o-cresyl phosphate
115-86-6	Triphenyl phosphate (TPP)
126-72-7	Tris (2,3-dibromopropyl) phosphate (TRIS) (TBPP)

Appendix 5: Flame Retardants	
545-55-1	Tris(1-aziridinyl)phosphine oxide (TEPA)
13674-84-5	Tris(2-chloro-1-methylethyl) phosphate (TCPP)
115-96-8	Tris(2-chloroethyl)phosphate (TCEP)
1330-78-5	Tris(methylphenyl) phosphate; Tricresyl phosphate (TCP)
13674-87-8	Tris[2-chloro-1-(chloromethyl)ethyl] phosphate (TDCP); Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)
25155-23-1	Trixylyl phosphate (TXP)
134237-50-6	α -Hexabromocyclododecane
134237-51-7	β -Hexabromocyclododecane

7.6 Appendix 6: Fluorinated Greenhouse Gases

Appendix 6: Fluorinated Greenhouse Gases	
29118-25-0	(1Z)-1,3,3,3-Tetrafluoroprop-1-ene; (Z)-1,3,3,3-Tetrafluoroprop-1-ene ((Z)-HFC-1234ze)
1691-17-4	(Difluoromethoxy)difluoromethane
3822-68-2	(Difluoromethoxy)trifluoromethane
1645-83-6	(E)-1,3,3,3-Tetrafluoroprop-1-ene ((E)-HFC-1234ze)
171182-95-9	1-(2,2-Difluoroethoxy)-1,1,2,2,2-pentafluoroethane
50807-77-7	1-(2,2-Difluoroethoxy)-1,1,2,2-tetrafluoroethane
188690-77-9	1-(Difluoromethoxy)-2-((difluoromethoxy)difluoromethoxy)-1,1,2,2-tetrafluoroethane
138495-42-8	1,1,1,2,2,3,4,5,5,5-decafluoropentane
677-56-5	1,1,1,2,2,3-hexafluoropropane
134769-21-4	1,1,1,2,2-Pentafluoro-2-(1,1,2,2-tetrafluoroethoxy)ethane
156053-88-2	1,1,1,2,2-Pentafluoro-2-(2,2,2-trifluoroethoxy)ethane
22410-44-2	1,1,1,2,2-Pentafluoro-2-methoxyethane
378-16-5	1,1,1,2,2-Pentafluoro-3-methoxypropane
22052-84-2	1,1,1,2,3,3,3-Heptafluoro-2-methoxypropane
431-89-0	1,1,1,2,3,3,3-heptafluoropropane
382-34-3	1,1,1,2,3,3-Hexafluoro-3-methoxypropane
431-63-0	1,1,1,2,3,3-hexafluoropropane
2356-62-9	1,1,1,2-Tetrafluoro-2-(trifluoromethoxy)ethane
811-97-2	1,1,1,2-tetrafluoroethane
690-39-1	1,1,1,3,3,3-hexafluoropropane
406-58-6	1,1,1,3,3-pentafluorobutane
460-73-1	1,1,1,3,3-pentafluoropropane
20193-67-3	1,1,1-Trifluoro-2-(trifluoromethoxy)ethane
420-46-2	1,1,1-trifluoroethane
160620-20-2	1,1,2,2,3,3-Hexafluoro-1-methoxypropane
679-86-7	1,1,2,2,3-pentafluoropropane
359-35-3	1,1,2,2-tetrafluoroethane
430-66-0	1,1,2-trifluoroethane
84011-15-4	1,1-Difluoro-2-(trifluoromethoxy)ethane
75-37-6	1,1-difluoroethane
188690-78-0	1,2-Bis(difluoromethoxy)-1,1,2,2-tetrafluoroethane
624-72-6	1,2-difluoroethane
2730-43-0	1-Chloro-3,3,3-trifluoropropene
512-51-6	1-Ethoxy-1,1,2,2-tetrafluoroethane
57041-67-5	2-(Difluoromethoxy)-1,1,1,2-tetrafluoroethane; Desflurane
26103-08-2	2-(Difluoromethoxy)-1,1,1,3,3,3-hexafluoropropane
280143-06-8	2,2,3,3,3-pentafluoropropanol
422-05-9	2,2,3,3,3-pentafluoropropanol
2730-62-3	2-Chloro-3,3,3-trifluoropropene
35042-99-0	3-(Difluoromethoxy)-1,1,2,2-tetrafluoropropane
N/A	3M(TM) NOVEC(TM) Engineered Fluid
78522-47-1	Bis(difluoromethoxy)difluoromethane
920-66-1	bis(trifluoromethyl)-methanol
355-25-9	decafluorobutane (perfluorobutane)
75-10-5	difluoromethane
678-26-2	dodecafluoropentane (perfluoropentane)

Appendix 6: Fluorinated Greenhouse Gases	
353-36-6	fluoroethane (ethyl fluoride)
93805-40-4	fluoroethane (ethyl fluoride)
593-53-3	fluoromethane (methyl fluoride)
N/A	HCFE-235da2 (isofluorane)
76-16-4	hexafluoroethane (perfluoroethane)
N/A	HFC-1234yf
N/A	HFC-1336mzz
N/A	HFE 263fb2
N/A	HFE-245fa2
N/A	HFE-254cb2
N/A	HFE-347pcf2
N/A	HFE-356mm1
N/A	HFE-569sf2 (HFE-7200)
1217104-37-4	Methoxy-perfluoro-Isobutene; methyl-nonafluoro-Isobutyl ether;
7783-54-2	nitrogen trifluoride
115-25-3	octafluorocyclobutane (perfluorocyclobutane)
76-19-7	octafluoropropane (perfluoropropane)
354-33-6	pentafluoroethane
931-91-9	perfluorocyclopropane
69991-67-9	perfluoropolymethylisopropyl-ether (PFPMIE)
2551-62-4	sulphur hexafluoride
355-42-0	tetradecafluorohexane (perfluorohexane)
75-73-0	tetrafluoromethane (perfluoromethane, carbon tetrafluoride)
421-14-7	Trifluoro(methoxy)methane
75-46-7	trifluoromethane (fluoroform)
373-80-8	trifluoromethyl sulphur pentafluoride

7.7 Appendix 7: Organotin Compounds

Appendix 7: Organotin Compounds	
1118-46-3	Butyl (trichloro) stannane; Butyltin trichloride; N-Butyltin trichloride
2587-76-0	Chlorotrioctylstannane
1002-53-5	Dibutyltin (DBT)
3542-36-7	Dichlorodioctylstannane
1135-99-5	Dichlorodiphenylstannane
23120-99-2	Dimethyltin (DMT)
753-73-1	Dimethyltin dichloride (DMTC)
15231-44-4	Dioctyltin (DOT)
94410-05-6	Dioctyltin (DOT)
1011-95-6	Diphenyltin (DPhT)
Various	Dipropyltin (DPT)
867-36-7	Dipropyltin compounds (DPT)
639-58-7	Fentin chloride; Triphenyltin chloride; Chloro(triphenyl)stannane
78763-54-9	Monobutyltin (MBT)
Various	Monomethyltin (MMT)
Various	Monooctyltin (MOT)
Various	Monophenyltin (MPhT)
1461-25-2	Tetrabutyltin (TeBT)
597-64-8	Tetraethyltin (TeET)
3590-84-9	Tetraoctyltin (TeOT)
56573-85-4	Tributyltin (TBT)
1461-22-9	Tributyltin chloride (TBTCL); Tributan-1-yl(chloro)stannane; Tributylchlorostannane
993-16-8	Trichloromethylstannane
3091-25-6	Trichlorooctylstannane
1124-19-2	Trichlorophenylstannane
3091-32-5	Tricyclohexyltin (TCyHT)
1631-73-8	Trimethyltin (TMT)
1066-45-1	Trimethyltin chloride
N/A	Trioctyltin (TOT)
668-34-8	Triphenyltin (TPhT)
2279-76-7	Tripropyltin (TPT)

7.8 Appendix 8: Pesticides, Herbicides and Biocides

Appendix 8: Pesticides, Herbicides and Biocides	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)
3424-82-6	1-dichloroethylene (DDE)
93-72-1	2-(2,4,5-trichlorophenoxy) propionic acid, its salts and compounds; 2,4,5-TP
53-19-0	2,4 DDD/ (2,4-Dichlorodiphenyl)dichloroethane
789-02-6	2,4 DDT/1,1,1-Trichloro-2-(2-chlorophenyl)-2-(4-chlorophenyl)ethane
93-76-5	2,4,5-T(ichlorophenoxyacetic acid)
94-75-7	2,4-D(ichlorophenoxyacetic acid)
135410-20-7	Acetamipirid (ISO)
160430-64-8	Acetamipirid [2]
319-84-6	a-Hexachlorocyclohexane with & without Lindane
309-00-2	Aldrin
2642-71-9	Azinophosethyl
86-50-0	Azinophosmethyl
319-85-7	b-Hexachlorocyclohexane with & without Lindane
4824-78-6	Bromophos-ethyl
2425-06-1	Captafol
63-25-2	Carbaryl
57-74-9	Chlordane
6164-98-3	Chlordimeform
470-90-6	Chlorfenvinphos
510-15-6	Chlorobenzilate; Ethyl-4,4'-dichlorobenzilate
1897-45-6	Chlorthalonil
210880-92-5	Clothianidin
56-72-4	Coumaphos
68359-37-5	Cyfluthrin
91465-08-6	Cyhalothrin
52315-07-8	Cypermethrin
72-54-8	DDD (Dichlorodiphenyl-dichloroethane)
72-55-9	DDE (Dichlorodiphenyl-dichloroethylene)
50-29-3	DDT (Dichlorodiphenyl-trichloroethane)
52918-63-5	Deltamethrin
333-41-5	Diazinone
97-17-6	Dichlofenthion
1085-98-9	Dichlofluanide
120-36-5	Dichloroprop
115-32-2	Dicofol
141-66-2	Dicrotophos
60-57-1	Dieldrin
60-51-5	Dimethoate
88-85-7	Dinoseb, its salts and acetate
165252-70-0	Dinotefuran
63405-99-2	DTTB (4, 6-Dichloro-7 (2,4,5-trichloro- phenoxy) -2-Trifluoro methyl benzimidazole)
115-29-7	Endosulfan
959-98-8	Endosulfan I (alpha)
33213-65-9	Endosulfan II (beta)
72-20-8	Endrine
66230-04-4	Esfenvalerate

Appendix 8: Pesticides, Herbicides and Biocides	
106-93-4	Ethylene dibromide
56-38-2	Ethylparathione; Parathion
299-84-3	Fenchlorphos
51630-58-1	Fenvalerate
370-50-3	Fluocofuron
319-86-8	g-Hexachlorocyclohexane with & without Lindane
1071-83-6	Glyphosate
76-44-8	Heptachlor
1024-57-3	Heptachloroepoxide
36355-01-8	Hexabromobiphenyl
118-74-1	Hexachlorobenzene (HCB)
27154-44-5	Hexachlorocyclohexane (technical grade)
608-73-1	Hexachlorocyclohexane, all isomers
105827-78-9	Imidacloprid (ISO)
138261-41-3	Imidacloprid (ISO)
465-73-6	Isodrine
4234-79-1	Kelevane
143-50-0	Kepone (Chlordecone)
58-89-9	Lindane
121-75-5	Malathione
94-74-6	MCPA
94-81-5	MCPB
93-65-2	Mecoprop
10265-92-6	Metamidophos
72-43-5	Methoxychlor
2385-85-5	Mirex
6923-22-4	Monocrotophos
150824-47-8	Nitenpyram [1]
120738-89-8	Nitenpyram [2]
298-00-0	Parathion-methyl
1825-21-4	Pentachloroanisole
52645-53-1	Permethrin
72-56-0	Perthane
7786-34-7	Phosdrin/Mevinphos
13171-21-6	Phosphamidon
Various	Polychloro chloromethyl sulphonamido diphenyl ether
41198-08-7	Profenophos
31218-83-4	Propethamphos
13593-03-8	Quinalphos
82-68-8	Quintozene
78-48-8	S,S,S-Tributyl phosphorotrithioate (Tribufos)
8001-50-1	Strobane
24019-05-4	Sulcofuron
297-78-9	Telodrine
153719-23-4	Thiamethoxam
111988-49-9	Tiacloprid
731-27-1	Tolylfluanide
8001-35-2	Toxaphene (Polychlorinated camphenes)
3380-34-5	Triclosan
1582-09-8	Trifluraline

7.9 Appendix 9: Phthalates

Appendix 9: Phthalates	
68515-51-5	1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters
71888-89-6	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)
68515-42-4	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)
68515-50-4	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear (DIHP)
84777-06-0	1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear (1,2-DPE)
68648-93-1	1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters
117-81-7	Bis(2-ethylhexyl) phthalate; Di-(2-ethylhexyl) phthalate (DEHP)
117-82-8	Bis(2-methoxyethyl) phthalate (DMEP)
85-68-7	Butyl benzyl phthalate (BBP)
84-61-7	Dicyclohexyl phthalate (DCHP)
84-77-5	Didecyl phthalate (DDP)
84-66-2	Diethylphthalate (DEP)
3648-21-3	Diheptyl phthalate
84-69-5	Diisobutyl phthalate (DIBP)
Several	Di-iso-decyl phthalate
26761-40-0	Diisodecyl phthalate (DiDP)
68515-49-1	Di-isodecyl phthalate (DIDP)
71850-09-4	Diisohexyl phthalate (DIHxP)
Several	Di-iso-nonyl phthalate - (DINP)
28553-12-0	Diisononyl phthalate (DINP)
68515-48-0	Diisononyl phthalate (DINP)
27554-26-3	Diisooctyl phthalate (DIOP)
605-50-5	Diisopentyl phthalate (DIPP)
131-11-3	Dimethyl Phthalate (DMP)
84-74-2	Di-n-butyl phthalate (DBP)
84-75-3	Di-n-hexyl phthalate (DnHP)
117-84-0	Di-n-octyl phthalate (DNOP)
84-76-4	Dinonyl phthalate (DNP)
131-18-0	Dipentyl phthalate (DPP) (DPENP); Di-n-pentyl phthalate (DnPP)
131-16-8	Dipropyl phthalate (DPRP)
776297-69-9	n-Pentyl-isopentylphthalate (nPIPP)
Several	Phthalic acid esters

7.10 Appendix 10: Polycyclic Aromatic Hydrocarbons (PAHs)

Appendix 10: Polycyclic Aromatic Hydrocarbons (PAHs)	
57-97-6	7,12-Dimethylbenz(a)anthracene
83-32-9	Acenaphthene
208-96-8	Acenaphthylene
120-12-7	Anthracene
205-99-2	Benz[e]acephenanthrylene; Benzo[b]fluoranthene (BbFA)
56-55-3	Benzo(a)anthracene
191-24-2	Benzo(g,h,i)perylene
192-97-2	Benzo[e]pyrene
205-82-3	Benzo[j]fluoranthene (BjFA)
207-08-9	Benzo[k]fluoranthene (BkFA)
218-01-9	Chrysene (CHR)
27208-37-3	Cyclopenta[c,d]pyrene
53-70-3	Dibenz[a,h]anthracene
189-64-0	Dibenzo[a,h]pyrene; Dibenzo[b,def]chrysene
189-55-9	Dibenzo[a,i]pyrene; Benzo[rst]pentaphene
191-30-0	Dibenzo[def,p]chrysene
206-44-0	Fluoranthene
86-73-7	Fluorene
193-39-5	Indeno[1,2,3-cd]pyrene
2381-21-7	Methylpyrene, 1-
91-20-3	Naphthalene
192-65-4	Naphtho[1,2,3,4-def]chrysene
85-01-8	Phenanthrene
129-00-0	Pyrene

7.11 Appendix 11: Other/Miscellaneous Chemicals

Appendix 11: Other/Miscellaneous Chemicals				
CAS Number	Substance	Limit	LOD	Test Method
62-53-3	(Free) Aniline	30 ppm	30 ppm	Textiles: EN ISO 14362-1 (2017) Leather: EN ISO 17234-1 (2015)
111-41-1	2- (2-Aminoethylamino) ethanol (AEEA)	100 ppm	10 ppm	Solvent extraction, LC MS/MS or GC-MS (Substance is not stable in aqueous matrices or solutions)
617-94-7	2-Phenyl-2-Propanol	10 ppm	10 ppm	GC-MS // Extraction with Methanol
98-86-2	Acetophenone	20 ppm	20 ppm	GC-MS // Extraction with Methanol
123-77-3	Diazene-1,2-dicarboxamide [C,C'-azodi(formamide)] (ADCA)	100 ppm	100 ppm	Solvent Extraction // GC-MS or LC-MS or LC-DAD
119-65-3	Isoquinoline	50 ppm	50 ppm	LC-MS/MS // Extraction with Methanol LC-DAD // Extraction with THF LC-DAD // Extraction with Methanol LC-MS/MS // Extraction with THF
11138-47-9	Perboric acid, sodium salt	1000 ppm	100 ppm	Methanol extraction, ICP
7632-04-04	Perboric acid, sodium salt	1000 ppm	100 ppm	Methanol extraction, ICP
108-95-2	Phenol	20 ppm	20 ppm	LC-MS // Extraction with Methanol GC-MS // Extraction with Methanol
91-22-5	Quinoline	50 ppm	50 ppm	LC-MS/MS // Extraction with Methanol LC-DAD // Extraction with THF or Methanol LC-MS/MS // Extraction with THF
13517-20-9	Sodium perborate	1000 ppm	100 ppm	Methanol extraction, ICP
15120-21-5	Sodium perborate	1000 ppm	100 ppm	Methanol extraction, ICP
16940-66-2	Sodium tetrahydroborate	1000 ppm	100 ppm	Methanol extraction, ICP
90568-23-3	tetrahydroxybis[mu-(peroxy-kappaO1:kappaO2)]di-, sodium (1:2)	1000 ppm	100 ppm	Methanol extraction, ICP
125022-34-6	tetrahydroxybis[mu-(peroxy-kappaO1:kappaO2)]di-,sodium	1000 ppm	100 ppm	Methanol extraction, ICP
62-56-6	Thiourea	1000 ppm	100 ppm	Solvent extraction, LC MS/MS, LC-DAD MS
13463-67-7	Titanium Dioxide	No intentional use	0.1 ppm	For powder mixtures containing TiO ₂ , the formulator should provide confirmed data to demonstrate conformance with particle size requirements for TiO ₂ .

7.12 Appendix 12: EN71-3:2019 +A1:2021 : Safety of toys

Appendix 12: EN71-3:2019+A1:2021: Safety of toys - Migration of certain elements (mg/kg)	
Aluminium	28,130
Antimony	560
Arsenic	47
Barium	18,750
Boron	15,000
Cadmium	17
Chromium (III)	460
Chromium (VI)	0.053
Cobalt	130
Copper	7,700
Lead	23
Manganese	15,000
Mercury	94
Nickel	930
Selenium	460
Strontium	56,000
Tin	180,000
Organic Tin	12
Zinc	46,000