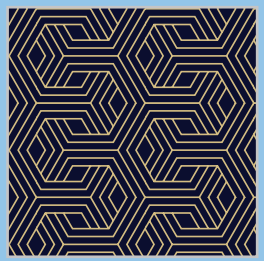

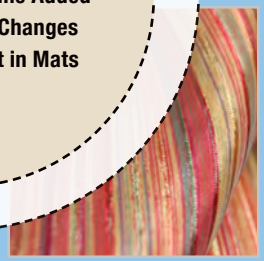

New for 2026!

Acetophenone Azine Added
Bisphenol Limit Changes
Formamide Limit in Mats

Apparel and Footwear International RSL Management Group

RESTRICTED SUBSTANCES LIST

Version 11 | 2026

Table of Contents

AFIRM Mission & Vision 3
Legal Statement 3
Policy Statement 3

Scope of the AFIRM RSL 4

Circular (Recovered or Recycled) Materials....5

Uses of the AFIRM RSL....6
Links and References 6

Additional Substances and Parameters to Consider....7

AFIRM Chemical Information Sheets 8

Definitions of Ages 9
Definition of “Child Care Article”....9
Definition of “Limit” 9
Definition of “Component” 9
Definition of “Reporting Limits”....9
Definition of “Sample” and “Composite Sample” 9

Definitions of Material Types 10

Change Log for the 2026 AFIRM RSL 12

AFIRM RSL Testing Matrix 13

AFIRM Restricted Substances List 16

Appendix A. South Korea KC Mark Soluble Heavy Metal Requirements 41

Appendix B. Per- and Polyfluoroalkyl Substances (PFAS)....42

Appendix C. Pesticides and Herbicides, Agricultural 43

Appendix D. Volatile Organic Compounds....44

Apparel and Footwear International RSL Management (AFIRM) Group is the author of this work.

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For more information about AFIRM, visit www.afirm-group.com.

AFIRM Mission & Vision

Mission

AFIRM Group (Apparel and Footwear International RSL Management Working Group, established in 2004) is on a mission to reduce the use and impact of harmful substances in the apparel and footwear supply chains.

Our purpose is to provide a forum to advance the global management of restricted substances in apparel and footwear, communicate information about chemicals management to the supply chain, discuss concerns, and exchange ideas for improving chemicals management.

Vision

AFIRM is recognized as a global center of excellence, providing resources to enable continuous advancement of chemicals management best practices.

We do this based on transparency, science, and collaboration with relevant industries and experts to build safer and more sustainable chemistry within the apparel and footwear supply chains.

As we implement this vision, AFIRM's mission, objectives, and projects will remain product-focused or RSL-related.

Legal Statement

The AFIRM RSL constitutes information from AFIRM only and does not represent any individual AFIRM member. Individual brand RSLs may differ in specific parameters.

The AFIRM RSL is not intended to and does not establish any industry standard of care. The AFIRM RSL may not always provide the most appropriate approach for any individual company's chemical management program. Many brands have implementation guidelines, and suppliers must follow those guidelines where required.

The AFIRM RSL does not constitute legal advice and is not a substitute for legal advice. There is no warranty, express or implied, as to the completeness or utility of the information contained in this AFIRM RSL, including, without limitation, that the information is current and error-free. AFIRM disclaims liability of any kind whatsoever resulting from any use of or reliance on the AFIRM RSL.

Policy Statement

AFIRM has created the following Restricted Substances List ("AFIRM RSL") to assist supply chain participants seeking to increase product quality and safety, or to reduce their environmental impact by limiting the use of certain substances in apparel and footwear.

AFIRM acknowledges that a brand's offerings may include closely related products utilizing the same or similar materials, such as accessories, jewelry, sporting good equipment, wearables, and home textiles. The AFIRM RSL may be applied to these additional product types, and examples are included in the scope of this document for guidance; however, the primary focus of the AFIRM RSL remains apparel and footwear. AFIRM recommends that suppliers check with their brand customers for specific requirements regarding additional product categories.

Scope of the AFIRM RSL

Per the Policy Statement on the previous page, the primary focus of the AFIRM Group and the AFIRM RSL is apparel and footwear.

However, the AFIRM RSL may also be applied to accessories, jewelry, sporting good equipment, wearables, and home textiles.

- **Apparel.** Any garment worn on the body intended to protect, cover, or adorn.
- **Footwear.** Any durable covering for the feet intended to protect, cover, or comfort.
- **Accessories.** Any product intended to complement apparel, both carried and worn.
- **Jewelry.** Small decorative items worn for personal adornment such as rings, necklaces, earrings, pendants, bracelets and cufflinks. Jewelry may be attached to the body or clothing.
- **Sporting Good Equipment.** Any product intended for use in sport or exercise, including protective equipment.
- **Wearables.** Battery-powered electronic devices intended to be worn on the body during normal use. The AFIRM RSL covers components used on the external portion (i.e. skin contact) of the wearable product. Please note that certain wearable products, such as fitness trackers worn on the wrist, could also be classified as jewelry. AFIRM recommends that suppliers check with their brand customers regarding specific testing requirements for wearable components.
- **Home Textiles.** Any product intended for functional or decorative purposes in the home.

For guidance purposes, AFIRM provides examples of products to which the AFIRM RSL may be applied, including but not limited to those listed in Table 1.

Table 1. Examples of Products within the Scope of the AFIRM RSL

Apparel	Footwear	Accessories	Equipment	Wearables	Home Textiles
• Shirts • Pants/trousers • Shorts • Skirts • Dresses • Swimwear • Socks • Jackets • Vests • Sweatshirts and hoodies • Sweaters • Underwear • Sleepwear and loungewear	• Lifestyle • Athletic (e.g. running, training) • Sports (e.g. basketball, soccer, football, baseball) • Sandals • Flip flops • Boots • Slippers	• Hats • Headbands • Scarves • Handbags • Backpacks • Sunglasses • Shoelaces • Belts • Hair clips • Gloves (e.g. winter) • Jewelry	• Shin and leg guards • Gloves (e.g. baseball, football, golf) • Chest protectors • Balls (e.g. basketball, football, soccer) • Helmets • Shoulder, knee, and elbow pads • Yoga mats and blocks • Rackets (e.g. tennis, racquetball, badminton) • Fitness equipment (e.g. treadmills) • Bicycles	• Fitness trackers (worn on wrist, chest, finger, ear, etc.) • Heart-rate monitors • Digital watches • Smart watches • Smart apparel and footwear • Wireless headphones and earbuds	• Towels • Bathrobes • Bed linens (e.g. sheets, pillowcases, duvets) • Blankets

Additional Product-specific Regulatory Requirements

Please note that the following items have additional product-specific regulatory requirements that fall outside the scope of the AFIRM RSL.

Suppliers must take additional steps to ensure products produced in their facilities comply with all such requirements—which include safety, flammability, and more.

- **Toys.** These products have regulatory and specific chemical requirements.
- **Sunglasses and Children's Jewelry.** These types of accessories have non-chemical safety requirements.
- **Personal Protective Equipment (PPE).** These products have non-chemical safety and performance regulations and standards (e.g., NOCSAE and Regulation (EU) 2016/425).
- **Food-contact Materials.** These products have regulatory and specific chemical requirements.
- **Electrical & Electronic Equipment (EEE) Components.** Components of products that do not come into contact with the skin are subject to other regulatory requirements (e.g. RoHS, EU Batteries Regulation).

Because AFIRM member brands may differ on the types of products classified under each of these categories, suppliers are advised to check with their customers regarding brand-specific definitions, requirements, and product applicability.

Circular (Recovered or Recycled) Materials

The intersection of chemical restrictions and circular economy policies presents both challenges and opportunities.

As the push for sustainability intensifies, voluntary initiatives and regulatory measures increasingly encourage, and in some cases, require the integration of recovered or recycled materials in the manufacturing of new products. However, these efforts can sometimes conflict with existing or emerging chemical restrictions. The reuse and recycling of materials can inadvertently reintroduce legacy chemicals—substances that were previously unrestricted but are now subject to new limitations—into new products that include recycled content.

Regulatory Adaptations & Industry Guidance

An increasing number of markets are implementing exemptions or extending transition periods to accommodate a transition toward circularity that acknowledges potential challenges with legacy chemicals. AFIRM acknowledges the need for clear guidance as circularity initiatives evolve and plans to publish dedicated resources and guidance on circularity and legacy materials in the future. In the interim, information regarding the implications of chemical restrictions on recycled materials is integrated throughout the AFIRM Restricted Substances List (RSL). The preferred strategy remains the elimination of legacy chemicals wherever feasible.

AFIRM's Approach

AFIRM remains actively engaged with policymakers to support advancement of circularity goals alongside chemical safety and management. The objective is to find an appropriate balance between ensuring the safety of chemical content in products and promoting the responsible reuse of finite resources.

In situations where the removal of legacy chemicals is not possible, AFIRM advises suppliers to consult with their brand customers.

Uses of the AFIRM RSL

AFIRM member brands may differ on individual parameters; suppliers are advised to check with the customer regarding brand-specific requirements.

The AFIRM RSL leverages AFIRM's mission — to reduce the use and impact of harmful substances in the apparel and footwear supply chain — by providing a single set of information for maximum and in-depth implementation within the supply chain.

Some examples of uses for the AFIRM RSL, depending on the objectives of the user, include:

- Providing a tool for vendors to establish chemical management knowledge and processes.
- Building full or base compliance with AFIRM member chemical restrictions.
- Providing a common base for testing, which may be accepted by multiple AFIRM brands. AFIRM member companies determine and communicate to their vendors their testing requirements and acceptance of test reports.

Links and References

Be proactive! These links provide additional important information regarding chemical management and should be visited on a regular basis.

AFIRM Packaging Restricted Substances List
www.afirm-group.com/packaging-restricted-substance-list

- Available in English, Simplified Chinese, Traditional Chinese, Vietnamese, Japanese, Indonesian, Spanish, and Turkish.

AFIRM Chemistry Toolkit
www.afirm-group.com/toolkit

- Available in English, Simplified Chinese, Traditional Chinese, Vietnamese, Japanese, Indonesian, Spanish, and Turkish.

AFIRM PFAS Phaseout Guidance
www.afirm-group.com/pfas-phaseout-guidance

- Available in English, Simplified Chinese, Traditional Chinese, Vietnamese, Japanese, Indonesian, Spanish, and Turkish.

AFIRM Explainer Videos
www.afirm-group.com/start-here

- Most are available in English, Simplified Chinese, Vietnamese, Japanese, Indonesian, and Spanish, with additional translations forthcoming.

AFIRM Chemical Information Sheets
www.afirm-group.com/chemical-information-sheets

- Available in English, Simplified Chinese, Vietnamese, Japanese, Indonesian, and Spanish, with additional translations forthcoming.

AFIRM Sampling Guidance
www.afirm-group.com/wp-content/uploads/2024/06/AFIRM_SamplingGuidance_2024_0111a.pdf

- Available in English

Overview of legal chemical limits and country of origin
www.aafaglobal.org/AAFA/Solutions_Pages/Restricted_Substance_List

Regulated fluorinated greenhouse gases; Regulation (EU) 2024/573
www.eur-lex.europa.eu/eli/reg/2024/573/oj

Regulated substances that deplete the ozone layer; Regulation (EU) 2024/590
www.eur-lex.europa.eu/eli/reg/2024/590/oj

Zero Discharge of Hazardous Chemicals (ZDHC) Foundation — Manufacturing Restricted Substances List (MRSL)
https://mrsl.roadmaptozero.com

Additional Substances and Parameters to Consider

EU REACH Substances of Very High Concern

Based on scientific evidence indicating potential hazards to human health or the environment, the European Commission (EC) and European Union (EU) member states propose substances of very high concern (SVHCs) for placement on the European Chemicals Agency (ECHA) "Candidate List of Substances of Very High Concern for Authorisation."

Placing a substance on the Candidate List triggers specific obligations for importers, producers, and suppliers of any article that contains one or more of these substances above 0.1 percent by weight per component. The obligations include providing sufficient information to allow safe use of the article to brand and retail customers or, upon request, to a consumer within 45 days of receipt of the request.

In addition, ECHA must be notified if the substance(s) are present in article components above 0.1 percent in quantities totaling over one ton per producer or importer per year. Notification is not required if the substance has already been registered for that use or when the producer or importer of an article can exclude exposure of humans and the environment during the use and disposal of the article. In such cases, the producer or importer must supply appropriate instructions to the recipient of the article.

ECHA periodically updates the Candidate List; find the most current version at https://www.echa.europa.eu/candidate-list-table.

AFIRM member brands may differ on how they address SVHCs as well as the legal obligations. AFIRM advises suppliers to consult with their customers regarding brand-specific requirements for SVHCs.

California Proposition 65 Substances

Each year, California publishes a list of chemicals known to the state to cause cancer or reproductive toxicity.

Businesses that expose individuals to one or more of these chemicals above various thresholds must provide a clear and reasonable warning before the exposure occurs. For consumer products, this is typically through warning labels on the products or retail signage. Note that this warning is not the same as a regulatory requirement indicating that the product is "unsafe" if a specific concentration is exceeded. Enforcement is carried out through civil lawsuits brought by the California attorney general, district attorneys, or private parties acting in the public interest.

Additional information can be found at https://oehha.ca.gov/proposition-65.

AFIRM member brands may differ on how they address warning-label requirements. AFIRM advises suppliers to consult with their customers regarding brand-specific requirements for Proposition 65 substances.

Important: Compliance with AFIRM restricted substance limits does not prevent public or private enforcers from asserting that products violate Proposition 65 warning obligations.

Specific In-country Testing and Certification Requirements

Some countries—such as Korea, Russia, and Saudi Arabia—have specific requirements for certain products.

This includes requiring that testing be performed at an approved laboratory in-country, special certification marks, and even unique testing not required by any other country. The AFIRM RSL covers these substance limit requirements, but test methods may vary, and AFIRM member brands may differ on how they address these legal obligations. AFIRM advises suppliers to consult with their customers regarding brand-specific requirements for countries which may have specific testing and/or certification requirements.

Biocides, Nanoparticles, Sensitizers, Endocrine Disruptors, Etc.

Some brands may have specific requirements regarding the use of substances of concern such as biocides, nanoparticles, sensitizers, and endocrine disruptors.

AFIRM recommends checking with your customers regarding individual policies or requirements.

AFIRM Chemical Information Sheets

AFIRM member brands have produced a comprehensive set of educational materials advising suppliers about best practices for chemicals management.

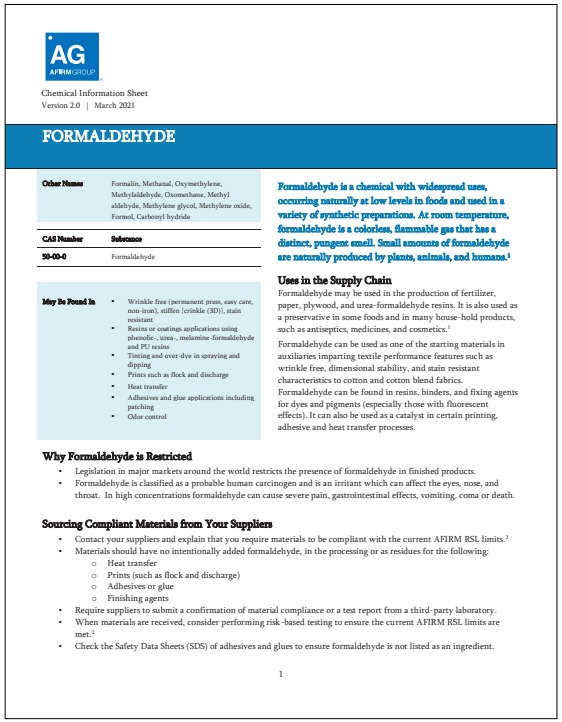
Each chemical information sheet covers a chemical or class of chemicals, giving an overview of the substance(s), where they are likely to be found in the material manufacturing process, and how to maintain compliance with the AFIRM RSL.

The sheets contain some information relevant to packaging, and future revisions will include more specific information.

The complete library of chemical information sheets is available on the AFIRM website at http://afirm-group.com/chemical-information-sheets; additionally, links to individual information sheets are embedded in the pages that follow.

The download icon next to a chemical or class of chemicals in the AFIRM RSL indicates that an information sheet is available.

Click on the icon or name for each chemical or class of chemicals included in the RSL; your web browser will open and download a PDF of the information sheet for that substance.



AG AFIRM GROUP

Chemical Information Sheet
Version 2.0 | March 2021

FORMALDEHYDE

Other Names	Formalin, Methanal, Oxymethylene, Methylaldehyde, Oxomethane, Methyl aldehyde, Methylene glycol, Methylene oxide, Formol, Carbonyl hydride

CAS Number	Substance
50-00-0	Formaldehyde

May Be Found In

- Wrinkle free (permanent press, easy care, non-iron), stiffen [crinkle (3D)], stain resistant
- Resins or coatings applications using phenolic-, urea-, melamine-formaldehyde and PU resins
- Tinting and over-dye in spraying and dipping
- Prints such as flock and discharge
- Heat transfer
- Adhesives and glue applications including patching
- Odor control

Formaldehyde is a chemical with widespread uses, occurring naturally at low levels in foods and used in a variety of synthetic preparations. At room temperature, formaldehyde is a colorless, flammable gas that has a distinct, pungent smell. Small amounts of formaldehyde are naturally produced by plants, animals, and humans.[1]

Uses in the Supply Chain

Formaldehyde may be used in the production of fertilizer, paper, plywood, and urea-formaldehyde resins. It is also used as a preservative in some foods and in many house-hold products, such as antiseptics, medicines, and cosmetics.[1]

Formaldehyde can be used as one of the starting materials in auxiliaries imparting textile performance features such as wrinkle free, dimensional stability, and stain resistant characteristics to cotton and cotton blend fabrics. Formaldehyde can be found in resins, binders, and fixing agents for dyes and pigments (especially those with fluorescent effects). It can also be used as a catalyst in certain printing, adhesive and heat transfer processes.

Why Formaldehyde is Restricted

- Legislation in major markets around the world restricts the presence of formaldehyde in finished products.
- Formaldehyde is classified as a probable human carcinogen and is an irritant which can affect the eyes, nose, and throat. In high concentrations formaldehyde can cause severe pain, gastrointestinal effects, vomiting, coma or death.

Sourcing Compliant Materials from Your Suppliers

- Contact your suppliers and explain that you require materials to be compliant with the current AFIRM RSL limits.[2]
- Materials should have no intentionally added formaldehyde, in the processing or as residues for the following:
  - Heat transfer
  - Prints (such as flock and discharge)
  - Adhesives or glue
  - Finishing agents
- Require suppliers to submit a confirmation of material compliance or a test report from a third-party laboratory.
- When materials are received, consider performing risk-based testing to ensure the current AFIRM RSL limits are met.[2]
- Check the Safety Data Sheets (SDS) of adhesives and glues to ensure formaldehyde is not listed as an ingredient.

1

Definitions of Ages

Various countries define the terms "babies," "children," and "adults" differently.

Based on legislation, the age ranges listed in Table 2 satisfy the most restrictive global requirements.

Table 2. Definition of Ages

	Age Range
Babies	0 to 36 months
Children	36 months to 14 years
Adults	14 years and older

Definition of "Child Care Article"

Various countries define the term "child care article" differently.

The most restrictive definition (based on global chemical legislation) includes articles designed or intended by the manufacturer to facilitate sleeping, relaxation, hygiene, feeding, sucking, or teething for children three years of age or younger.

Definition of "Limit"

Some restrictions require that substance limits not be exceeded while others require that substance concentrations be below designated limits.

For example, chromium VI must be below 3 ppm to be compliant with EU law. Test results should always be below designated limits to ensure compliance with all market requirements.

Definition of "Component"

A component is a part of a product consisting of a material of uniform composition throughout, or a combination of materials that cannot be disjoined or separated into different materials by abrasion, crushing, cutting, grinding, or unscrewing.

Components should be thought of as articles themselves for purposes of RSL compliance and are subject to each specified concentration limit. This includes the 0.1% threshold above which SVHCs may require disclosure under the EU REACH Regulation.

Definition of "Reporting Limits"

Values above which labs should report substances detected for purposes of data capture and harmonization.

By reporting these values, instead of a simple PASS/FAIL, the supply chain can capture information regarding the presence of substances below the RSL limit. The reporting limits also allow data to be harmonized between various testing labs. Reporting limits are values at or above the method Practical Quantification Limit (PQL). The PQL represents the lowest level at which accurate, precise, and robust data can be reported. AFIRM RSL reporting limits are widely achievable by laboratories across the global analytical testing industry and allow for combined (composite) testing where applicable.

Definition of "Sample" and "Composite Sample"

"Sample" as used throughout this document refers to a product component or piece of a product component (see "component" definition above) that can be tested by utilizing the recommended test methods.

"Composite samples" are combinations of two or more samples that may be tested together with a corresponding higher PQL and reporting limit.

Definitions of Material Types

For the purpose of this RSL, AFIRM offers these definitions of material types and provides examples of materials in Table 3, on the next page.

Natural fibers. Animal or vegetable fibers (including semi-synthetics).

Blended fibers. Woven or knitted materials created by blending two or more fiber types. For the purpose of this RSL, a blended fiber consists of a natural and a synthetic fiber.

Synthetic fibers. Human-made fibers based on synthetic chemicals (often from petroleum sources) such as polymers and extruded fibers.

Synthetic coated fabrics. Leather-like materials composed of a textile backing and, typically, a PU or PVC coating. May be referred to as artificial, imitation, vegan, or synthetic leather, or pleather.

Natural leather. Created by tanning animal rawhides.

Coating. A fluid, semi-fluid, or other material, with or without a suspension of finely divided coloring matter, which changes to a solid film when a thin layer is applied to a metal, wood, stone, paper, leather, cloth, plastic, or other surface.

Coatings do not include printing inks or those materials which actually become a part of the substrate, such as the pigment in a plastic article or those materials which are actually bonded to the substrate, such as by electroplating or ceramic glazing. See “synthetic coated fabrics” for leather-like materials where the coating becomes part of the substrate.

Printing. The process of applying color to a fabric in definite patterns or designs.

Natural materials. Material derived from animals or plants that have undergone very little modification. Includes horn, bone, cork, wood, paper, and straw. Excludes natural fibers, natural leather, feathers, down, and metals.

Crystal. In this variety of glass, also known as lead glass, lead replaces calcium content of a typical potash glass. The addition of lead oxide gives crystal a much higher index of refraction than normal glass, and consequently much greater sparkle. Crystal typically contains at least 24% lead and is therefore exempt from many regulatory requirements for jewelry. In the European Union, labeling of crystal products is regulated by Council Directive 69/493/EEC, which defines four categories based on the chemical composition and properties of the material.

Polymers and plastics. Plastics are composed of various polymers (typically from petroleum sources) usually mixed with additives including colorants, plasticizers, stabilizers, and fillers. These additives affect the chemical composition, chemical properties, and mechanical properties of the plastic.

Natural rubber. Elastic material made from latex sap or trees that can be vulcanized.

Synthetic rubber. Material made from petroleum-based monomers with properties similar to natural rubber.

Foam. Spongy material made by trapping air bubbles in a solid. These can be open cell or closed cell.

Metals. Chemical elements that can be lustrous, ductile, malleable, and good conductors of heat and electricity. Includes metals deposited by physical vapor deposition (PVD), chemical vapor deposition (CVD), or electroplating.

Feathers and down. Includes the smaller down feathers as well as the larger contour and flight feathers. See the International Down and Feather Bureau for specific down and feather definitions.

Glue. A substance capable of holding materials together by surface attachment.

Table 3. Examples of Materials within the Scope of the AFIRM RSL

NOTE: This list provides examples of materials within each category but is not exhaustive.

Natural Fibers Including semi-synthetics	Synthetic Fibers	Blended Fibers Natural & Synthetic	Synthetic Coated Fabrics	Natural Leather & Fur Skin	Natural Materials	Metals	Other Materials	Feathers & Down	Polymers, Plastics, Foams, Natural Rubber & Synthetic Rubber	Coatings & Prints	Glue
• Cotton • Wool • Silk • Hemp • Cashmere • Linen • Fur hair • Rayon (semi-synthetic) • Lyocell (semi-synthetic)	• Polyester • Acrylic • Nylon • Polyamide	• Cotton-Polyester • Wool-Nylon • Ramie-Polyester	Textiles with: • Polyurethane (PU) coating • Polyvinyl Chloride (PVC) coating • Other Polymeric coatings	• Leather • Fur skin • Bonded/ recycled leather	• Horn • Bone • Cork • Wood • Paper • Straw • Stone • Shell (e.g. coconut or mother of pearl) • Jacron (a semi-synthetic paper product)	• Stainless steel • Brass • Copper • Gold • Silver • Aluminum	• Glass • Synthetic stone • Porcelain • Ceramic • Crystal	• Feathers • Down	• Ethylene vinyl acetate (EVA) • Polystyrene (PS) • Polyethylene (PE) • Acrylonitrile butadiene styrene (ABS) • Neoprene • Polypropylene (PP) • Polycarbonate (PC) • Polyamide (PA) • Polyurethane (PU) • Polyvinyl chloride (PVC) • Thermoplastic polyurethane (TPU) • Thermoplastic elastomer (TPE) • Styrene ethylene butylene styrene (SEBS)	Printing techniques such as: • Heat transfers • Dye sublimation printing • Screen printing • Direct-to-garment printing • Discharge printing • Plastisol transfers Coatings such as: • Polyvinyl chloride (PVC) • Polyurethane (PU) • UV-cured	• Hot melt adhesive • Powdered adhesive • Flock adhesive • Contact adhesive • Latex glue • Polyure-thane glue • Neoprene cement • Epoxies • Silicone adhesive • UV-cured adhesive

Change Log for the 2026 AFIRM RSL

CAS No.	Substance / Material	Modification	Page
N / A	Circular (Recovered or Recycled) Materials	• Added note about growing tension between chemical restriction policies and circular economy goals.	5
N / A	Materials Submitted for Testing	• Added Definition of “Sample” and “Composite Sample.”	9
729-43-1	Acetophenone Azine	• Added with a 50-ppm limit due to skin sensitization potential. Includes separate test method.	16
Various	Bisphenols	• Reduced limit for BPS, BPB, and BPF in leather to 500 ppm each. • Added limit for BPA in polycarbonate materials at 100 ppm. • Reduced limit for all bisphenols in other materials to 200 ppm each.	19
Various	Cyclosiloxanes	• Updated method to Ultrasonic extraction with TBME or acetone for 30 min at 40°C then GC/MS.	23
Various	Heavy Metals (Non-Jewelry)	• Updated total content method for leather to EN ISO 17072-2:2022 for several metals.	27–29
		• Changed extraction method for leather from DIN EN ISO 17072-1:2019 to EN ISO 17072-1:2019 for method reference consistency.	
		• Changed methods for all other materials from DIN EN 16711:2016 to EN 16711:2015 for parts 1 & 2 for method reference consistency.	
		• Updated method EN 16128:2015 for nickel release (eyewear frames) to 2025 version.	29
Various	Organotin Compounds	• Updated test method to ISO 16179:2025.	33
Various	Per- & Polyfluoroalkyl Substances (PFAS)	• Added important note and link to recently published Decree imposing new PFAS limits in France, with exemptions for secondhand and recycled goods as well as some highly specialized products.	35, 42
		• Re-added several PFAS substances to Appendix B that were previously removed during the 2025 midyear update because they cannot be directly measured with EN 17681-1:2025. Additional testing information is provided.	
Various	Solvents & Residuals	• Updated test method for textiles to EN 17131-1:2025.	38
75-12-7	Formamide	• Adopted 200 ppm limit for play mats, baby mats, and yoga mats.	38
Various	UV Absorbers / Stabilizers	• Lowered reporting limit to 50 ppm for entire category.	39
25973-55-1	UV 328	• Added important clarification regarding stabilized THF used for extraction.	39

AFIRM RSL Testing Matrix

Listed substances and classes of substances have varying risk levels across different materials and should be tested accordingly.

The Testing Matrix is a prescriptive approach to help brands and suppliers effectively manage chemical risks by adopting a common testing approach for use and acceptance across different brands. Chemicals assigned a Level 1 in materials should be viewed as the minimum amount of testing required to satisfy AFIRM member requirements, and chemicals assigned a Level 2 are recommended for additional testing and may be required at brand discretion. Regular and self-governed testing of all relevant substances by suppliers will help to ensure the widest acceptance of third-party test reports by international brands.

The Testing Matrix was developed by AFIRM brands utilizing multiple sources of information, including industry RSL testing information, a broad understanding of global supply chain operations, and from nearly two decades of managing restricted substances across a wide range of materials.

The Testing Matrix uses the following color codes:

- 1 **Red = Higher risk.** Testing required.
- 2 **Orange = Lower risk.** Testing recommended and may be required at brand discretion.
- **Blank = Lowest risk.** Not anticipated in material.

Refer to footnotes for material-specific testing recommendations and exceptions.

Suppliers must check with their brand customers to understand if they will accept test reports according to this AFIRM Testing Matrix. Individual brand testing programs, to the extent they are different, supersede the AFIRM RSLTesting Matrix unless a brand indicates otherwise.

It is a goal of the AFIRM Group to reduce the testing burden on suppliers and streamline the RSL testing approach, while further reducing risk of restricted substances in materials and products. As brands adopt the AFIRM Testing Matrix into their RSL process, suppliers and AFIRM brands will be able to share test reports and data more easily, reducing the need for multiple RSL test submissions to satisfy different RSL requirements.

Determining Test Methods Using the AFIRM RSL Testing Matrix

The test methods listed in the RSL for specific materials correspond to the AFIRM RSL Testing Matrix.

A blank color code for any material will not have a corresponding test method.

For example, Metal has a blank color code for APEOs and therefore no test method is listed for APEOs for Metal in the RSL.

If the RSL states “All Materials” or “All Materials Except,” this means the test method is applicable to all materials listed with a color of 1 or 2 that do not have a specific test method listed.

AFIRM recommends consulting your testing laboratory to determine the best test method for any material not currently listed in this document.

Table 4. AFIRM RSL Testing Matrix

NOTE: For recycled materials, additional testing may be required at Level 1; check with each brand on requirements.

Substance	Natural Fibers	Synthetic Fibers	Natural & Synthetic Blends	Synthetic Coated Fabrics	Natural Leather & Fur Skin	Natural Materials	Metals	Other: Porcelain, Ceramic, Glass, Crystal, Etc.	Feathers & Down	Polymers								Coatings & Prints	Glue
										EVA	PU Foams	All other PU & TPU	Rubber Excludes Latex and Silicon Rubbers	Polycarbonate	ABS	PVC	All Other Foams, Plastics & Polymers		
Acetophenone, 2-Phenyl-2-Propanol & Related Substances										2									
Acidic & Alkaline Substances (pH)	1	1	1	1	1														
Alkylphenol (AP) & Alkylphenol Ethoxylates (APEOs), including all isomers	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1
Azo-amines & Arylamine salts	1A	1A	1A	1A	1A	1A			1A									1	
Bisphenols		1	1	1	1					2	2	2	2	1	2	2	2		
Brominated & Organophosphorus Substances	2B																		
Chlorinated Paraffins				2K	1					2	2	1	1	2	2	1	2		
Chlorophenols	2	2	2		2														
Chlorinated Benzenes & Toluenes		2	2	2															
Cyclosiloxanes	2	2	2														2C	2	
Dimethylfumarate (DMFu)					2														
Dyes, Forbidden & Disperse		1A	1A	1A														2	
Dyes, Navy Blue		2	2																
Fluorinated Greenhouse Gases																			
Formaldehyde	1	1	1	2	1	1D							2					1	1

A Level 1 for dyed/colored materials (non-white) only.
B Level 2 only if Flame Retardant use or contamination is suspected or if TPP use suspected in PU,TPU, or other polymeric materials.
C Level 2 for silicone polymers only.
D Level 1 for Wood, Paper, and Straw materials only.
E Level 2 for Wool materials only.
F Level 2 if extractable Chrome above 1 ppm only.
G Copper is exempt from restriction limits in Metal parts.
H Level 2 for plant-based fibers only; N/A for animal-based fibers.
J Level 1 for Cadmium and Lead only; Crystal is exempt for Lead.
K Level 1 for PVC materials only. Otherwise, Level 2.
L Level 2 for Styrene/Butadiene Rubbers (SBRs) only.
M Level 1 if PFAS use or contamination is suspected.
N Level 1 if Rubber or black Polymeric materials, otherwise Level 2.
P Level 1 for PU and PVC- based materials only.
Q Level 1 for glues fixed in final product

Table 4. AFIRM RSL Testing Matrix

Substance	Natural Fibers	Synthetic Fibers	Natural & Synthetic Blends	Synthetic Coated Fabrics	Natural Leather & Fur Skin	Natural Materials	Metals	Other: Porcelain, Ceramic, Glass, Crystal, Etc.	Feathers & Down	Polymers								Coatings & Prints	Glue
										EVA	PU Foams	All other PU & TPU	Rubber Excludes Latex and Silicon Rubbers	Polycarbonate	ABS	PVC	All Other Foams, Plastics & Polymers		
Heavy Metals, Chromium VI	2E	2F			1														
Heavy Metals, Extractable	1	1	1	2	1		2G			2	2	2	2	2	2	2	2	2	
Heavy Metals, Nickel Release							1												
Heavy Metals, Total	2H		2H	1	2		1	1J		1	1	1	1	1	1	1	1	1	2
Monomers: Styrene & Vinyl Chloride				1K									2L		2	1		1K	
N-Nitrosamines											2	2	2						
Organotin Compounds		2	2	1	2						1	1	1			1	1	1	1
Ortho-phenylphenol (OPP)	2	2	2	2	2													2	
Ozone-depleting Substances																			
Per- & Polyfluoroalkyl Substances (PFAS)	1M																		
Pesticides, Agricultural																			
Phthalates				1						1	1	1	1	2	2	1	1	1	1
Polycyclic Aromatic Hydrocarbons (PAHs)				2						1N	1N	1N	1			1N	1N	1N	1N
Quinoline		2	2																
Solvents / Residuals, DMFa				1							1	1						1P	1P
Solvents / Residuals, DMAC and NMP				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	1Q

A Level 1 for dyed/colored materials (non-white) only.
B Level 2 only if Flame Retardant use or contamination is suspected or if TPP use suspected in PU,TPU, or other polymeric materials.
C Level 2 for silicone polymers only.
D Level 1 for Wood, Paper, and Straw materials only.
E Level 2 for Wool materials only.
F Level 2 if extractable Chrome above 1 ppm only.
G Copper is exempt from restriction limits in Metal parts.
H Level 2 for plant-based fibers only; N/A for animal-based fibers.
J Level 1 for Cadmium and Lead only; Crystal is exempt for Lead.
K Level 1 for PVC materials only. Otherwise, Level 2.
L Level 2 for Styrene/Butadiene Rubbers (SBRs) only.
M Level 1 if PFAS use or contamination is suspected.
N Level 1 if Rubber or black Polymeric materials, otherwise Level 2.
P Level 1 for PU and PVC- based materials only.
Q Level 1 for glues fixed in final product

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Acetophenone, 2-Phenyl-2-Propanol & Related Substances				
98-86-2	Acetophenone	50 ppm each	Potential breakdown products in EVA foam when using certain cross-linking agents, including Dicumyl Peroxide (DCP).	Extraction in acetone or methanol GC/MS, sonication for 30 minutes at 60° C	25 ppm each
617-94-7	2-Phenyl-2-Propanol				
729-43-1	Acetophenone Azine		Formed by reaction between acetophenone and hydrazine, a byproduct found in azodicarbonamide (ADCA) up to 0.1%. May be found in foams where ADCA is used as a blowing agent and DCP is used as crosslinker.	Extraction in acetone or methanol GC/MS or LC/MS, sonication for 30 minutes at room temperature	
	Acidic & Alkaline Substances				
	pH value	Textiles: 4.0 – 7.5 Leather: Chrome-tanned: 3.2 – 5.5 Other: 3.5 – 7.5	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. 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. AFIRM recommends the limits cited to comply with global regulations and to minimize the chances of Chromium VI formation during tanning and processing of leather. For chrome-tanned leather, the final fixing bath of the re-tanning process should always have a pH below 4.0 to guard against the formation of Chromium VI. Important: Egypt, Morocco, and the Gulf Cooperation Council (GCC) require pH for leather not lower than 3.5.	Textiles and synthetic coated fabrics: EN ISO 3071:2020 Leather: EN ISO 4045:2018	N/A

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Alkylphenols (APs) **Alkylphenol Ethoxylates (APEOs)** **including all isomers**				
Various	Nonylphenol (NP), mixed isomers	Total APs: 10 ppm Total APs + APEOs: 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 down/feather fillings. 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. 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. Recycled products: Contact your brand customer for information about potential exemptions from the limit on NPEOs in recycled textile products, in particular recycled wool garments.	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 Down (China market only): GB/T 23322-2018 for compliance with GB/T 14272-2021	Total of NP + OP: 3 ppm
Various	Octylphenol (OP), mixed isomers				
Various	Nonylphenol ethoxylates (NPEOs)			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 Down (China market only): GB/T 23322-2018 for compliance with GB/T 14272-2021	Total of NPEOs + OPEOs: 20 ppm
Various	Octylphenol ethoxylates (OPEOs)				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Azo-amines & Arylamine Salts				
92-67-1	4-Aminobiphenyl	20 ppm each	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 17234-1:2024 p-Aminoazobenzene: All materials except leather: EN ISO 14362-3:2017 Leather: EN ISO 17234-2:2011	5 ppm each
92-87-5	Benzidine				
95-69-2	4-Chloro-o-toluidine				
91-59-8	2-Naphthylamine				
97-56-3	o-Aminoazotoluene				
99-55-8	2-Amino-4-nitrotoluene				
106-47-8	p-Chloraniline				
615-05-4	2,4-Diaminoanisole				
101-77-9	4,4'-Diaminodiphenylmethane				
91-94-1	3,3'-Dichlorobenzidine				
119-90-4	3,3'-Dimethoxybenzidine				
119-93-7	3,3'-Dimethylbenzidine				
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				
21436-97-5	2,4,5-Trimethylaniline hydrochloride				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Bisphenols				
80-05-7	Bisphenol-A (BPA)	Items intended to come in contact with the mouth: 1 ppm Textiles & leather: 10 ppm Polycarbonate Materials: 100 ppm Other Materials: 200 ppm	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 for some specific uses, including in thermal receipt paper. BPS and BPF can be found in polyamide dye-fixing agents used to dye nylon and in sulfone- and phenol-based leather synthetic tanning agents. Metal-complex dyes used on nylon may contain BPS. 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. BPA, BPS, and BPB are included on the REACH SVHC list. Additional restrictions on the entire class of bisphenols are expected, with a revised restriction proposal forthcoming in the European Union. Important: Compliance with bisphenol (and other) limits in the AFIRM RSL does not prevent public or private enforcers from asserting that products violate California Proposition 65 warning obligations. AFIRM recommends testing relevant materials for bisphenols according to the Testing Matrix and working with suppliers to minimize residual concentrations or replacing them with better alternatives where possible. Washing nylon fibers can remove free BPS but sufficient wastewater treatment should be in place.	Textiles: For precipitation, draw the extract to another container and add methanol or acetonitrile. This keeps the extraction process consistent. Extraction: 1 g sample/20 mL THF, sonication for 60 minutes at 60° C, then add methanol or acetonitrile for precipitation prior to analysis with LC/MS. Leather: EN ISO 11936:2023 Other Materials: Extraction: 1 g sample/20 mL THF, sonication for 60 minutes at 60° C, then add methanol or acetonitrile for precipitation prior to analysis with LC/MS.	Leather: 10 ppm each All other materials: 0.1 ppm for individual samples 1 ppm for composite samples
80-09-1	Bisphenol S (BPS)	Textiles & other materials: 200 ppm each Leather: 500 ppm each Limits will likely be reduced further in future revisions of the AFIRM RSL based on the best available technology and feasibility within the supply chain.			
77-40-7	Bisphenol B (BPB)				
620-92-8	Bisphenol F (BPF)				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Brominated & Organophosphorus Substances ***Formerly Flame Retardants***				
84852-53-9	Decabromodiphenyl ethane (DBDPE)	10 ppm each	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. 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.	All materials: EN ISO 17881-1:2016	5 ppm each
32534-81-9	Pentabromodiphenyl ether (PentaBDE)				
32536-52-0	Octabromodiphenyl ether (OctaBDE)				
1163-19-5	Decabromodiphenyl ether (DecaBDE)				
Various	All other Polybrominated diphenyl ethers (PBDEs)				
79-94-7	Tetrabromobisphenol A (TBBP A)				
59536-65-1	Polybromobiphenyls (PBB)				
3194-55-6	Hexabromocyclododecane (HBCDD)				
3296-90-0	2,2-bis(bromomethyl)-1,3-propanediol (BBMP)				
13674-87-8	Tris(1,3-dichloro-isopropyl) phosphate (TDCPP)			All materials: EN ISO 17881-2:2016	
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)				
115-86-6	Triphenyl phosphate (TPP)	500 ppm	May be used as a flame retardant, an antioxidant for PU materials, or as an alternative plasticizer to orthophthalates. Now included on the REACH SVHC list.	All materials: EN ISO 17881-2:2016	50 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Chlorinated Paraffins				
85535-84-8	Short-chain Chlorinated Paraffins (SCCPs) (C10-C13)	1000 ppm	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)	1000 ppm			100 ppm
	Chlorophenols				
15950-66-0	2,3,4-Trichlorophenol (TriCP)	0.5 ppm each	Chlorophenols are polychlorinated compounds used as preservatives or pesticides. 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. Important: Egypt and Morocco additionally restrict MCP and DCP to levels at or above this limit. They further restrict TeCP, TriCP, and PCP in baby products to levels below the 0.5 ppm reporting limit and not reliably testable across the international lab networks.	All materials: EN 17134-2:2023	0.5 ppm each
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)				
58-90-2	2,3,4,6-Tetrachlorophenol (TeCP)				
935-95-5	2,3,5,6-Tetrachlorophenol (TeCP)				
87-86-5	Pentachlorophenol (PCP) and its salts and esters				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Chlorinated Benzenes & Toluenes				
95-49-8	2-Chlorotoluene	Total: 1 ppm	Chlorobenzenes and Chlorotoluenes (Chlorinated Aromatic Hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/ polyester fibers. They can also be used as solvents. Cross-contamination from anti-moth agents and poly shipping bags may cause failures. Important: The Gulf Cooperation Council (GCC) maintains a limit of 1 ppm for 1,2-Dichlorobenzene in textiles.	All materials: EN 17137:2024	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				
2077-46-5	2,3,6-Trichlorotoluene				
6639-30-1	2,4,5-Trichlorotoluene				
76057-12-0	2,3,4,5-Tetrachlorotoluene				
875-40-1	2,3,4,6-Tetrachlorotoluene				
1006-31-1	2,3,5,6-Tetrachlorotoluene				
877-11-2	Pentachlorotoluene				
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				
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				
100-44-7	Benzyl Chloride				
95-50-1	1,2-Dichlorobenzene	10 ppm			1 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Cyclosiloxanes				
556-67-2	Octamethylcyclotetrasiloxane (D4)	1000 ppm each	May be present in silicone pads and as contaminants in formulations that contain silicone, like silicone softeners and those used for prints. They are SVHCs and will be restricted from use in solvents used for dry cleaning of textiles, leather, and fur in the EU beginning 06 June 2026 with derogations.	All materials: Ultrasonic extraction with tert-Butyl methyl ether (TBME) or acetone for 30 min at 40° C then GC/MS	50 ppm each
541-02-6	Decamethylcyclopentasiloxane (D5)				
540-97-6	Dodecamethylcyclohexasiloxane (D6)				
	Dimethylfumarate				
624-49-7	Dimethylfumarate (DMFu)	0.1 ppm	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

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Dyes (Forbidden & Disperse)				
2475-45-8	C.I. Disperse Blue 1	30 ppm each	Disperse dyes are a class of water-insoluble dyes that penetrate the fiber system of synthetic or manufactured fibers and are held in place by physical forces without forming chemical bonds. Disperse dyes are used in synthetic fiber (e.g., polyester, acetate, polyamide). Restricted disperse dyes are suspected of causing allergic reactions and are prohibited from use for dyeing of textiles.	All materials: DIN 54231:2022	15 ppm each
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				
12222-97-8	C.I. Disperse Blue 102				
12223-01-7	C.I. Disperse Blue 106				
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				
13301-61-6					
51811-42-8					
85136-74-9	C.I. Disperse Orange 149				
2872-52-8	C.I. Disperse Red 1				
2872-48-2	C.I. Disperse Red 11				
3179-89-3	C.I. Disperse Red 17				
61968-47-6	C.I. Disperse Red 151				
119-15-3	C.I. Disperse Yellow 1				
2832-40-8	C.I. Disperse Yellow 3				
6300-37-4	C.I. Disperse Yellow 7				
6373-73-5	C.I. Disperse Yellow 9				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Dyes (Forbidden & Disperse), continued				
6250-23-3	C.I. Disperse Yellow 23	30 ppm each	Disperse dyes are a class of water-insoluble dyes that penetrate the fiber system of synthetic or manufactured fibers and are held in place by physical forces without forming chemical bonds. Disperse dyes are used in synthetic fiber (e.g., polyester, acetate, polyamide). Restricted disperse dyes are suspected of causing allergic reactions and are prohibited from use for dyeing of textiles.	All materials: DIN 54231:2022	15 ppm each
12236-29-2	C.I. Disperse Yellow 39				
54824-37-2	C.I. Disperse Yellow 49				
6858-49-7					
54077-16-6	C.I. Disperse Yellow 56				
3761-53-3	C.I. Acid Red 26				
1694-09-3	C.I. Acid Violet 49				
569-61-9	C.I. Basic Red 9				
569-64-2	C.I. Basic Green 4				
2437-29-8					
10309-95-2					
548-62-9	C.I. Basic Violet 3				
632-99-5	C.I. Basic Violet 14				
2580-56-5	C.I. Basic Blue 26				
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				
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				
	Dyes, Navy Blue				
118685-33-9	Component 1: C39H23ClCrN7O12S·2Na	30 ppm each	Navy blue colorants are regulated and prohibited from use for dyeing of textiles. Index 611-070-00-2	All materials: DIN 54231:2022	15 ppm each
Not allocated	Component 2: C46H30CrN10O20S2·3Na				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Fluorinated Greenhouse Gases				
Various	See Regulation (EU) 2024/573 for a complete list.	0.1 ppm each	Prohibited from use. May be used as foam blowing agents, solvents, fire retardants, and aerosol propellants.	Sample preparation: Purge and trap — thermal desorption or SPME Measurement: GC/MS	0.1 ppm each
	Formaldehyde				
50-00-0	Formaldehyde	Adults and children: 75 ppm Babies: 16 ppm	Used in textiles as an anti-creasing and anti-shrinking agent. It is also often used in polymeric resins. Although very rare in Apparel and Footwear, composite wood materials (such as particle board and plywood) must comply with existing California and U.S. Formaldehyde emission requirements (40 CFR 770). Suppliers are advised to refer to brand-specific requirements for these materials. Important: United Arab Emirates Cabinet Resolution No. (54) restricts Formaldehyde in children's textiles to 20 ppm. Indonesia Ministerial Regulation No. 18 limits Formaldehyde to "not detected" (16 ppm) in the following products: towels, bedding, and handkerchiefs.	All materials except leather: JIS L 1041-2011 A (Japan Law 112) or EN ISO 14184-1:2011 Leather: EN ISO 17226-1:2021 or EN ISO 17226-2:2019. In case of interferences/doubts, proceed with EN ISO 17226-1:2021. EN ISO 17226-1:2021 can be used on its own.	16 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Heavy Metals (Non-Jewelry) **Extractable & Total Content**		See Appendix A for separate South Korea KC Mark soluble Heavy Metal requirements.		
7440-36-0	Antimony (Sb)	Extractable: 30 ppm	Found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.	All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019	Extractable: 3 ppm
7440-38-2	Arsenic (As)	Extractable: 0.2 ppm Total: 100 ppm	Arsenic and its compounds can be used in preservatives, pesticides, and defoliants for cotton, synthetic fibers, paints, inks, trims, and plastics.	Extractable: All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019 Total: All materials except leather: EN 16711-1:2015 Leather: EN ISO 17072-2:2022	Extractable: 0.1 ppm Total: 10 ppm
7440-39-3	Barium (Ba)	Extractable: 1000 ppm	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.	All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019	Extractable: 100 ppm
7440-43-9	Cadmium (Cd)	Extractable: 0.1 ppm Total: 40 ppm	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: All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019 Total: All materials except leather: EN 16711-1:2015 Leather: EN ISO 17072-2:2022	Extractable: 0.05 ppm Total: 5 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Heavy Metals (Non-Jewelry), continued		See Appendix A for separate South Korea KC Mark soluble Heavy Metal requirements.		
7440-47-3	Chromium (Cr)	Extractable: Textiles: Babies: 1 ppm Adults and children: 2 ppm	Chromium compounds can be used as dyeing additives; dye-fixing agents; colorfastness after-treatments; dyes for wool, silk, and polyamide (especially dark shades); and leather tanning. Important: Egypt and Morocco restrict extractable Chromium in leather products to 2 ppm for babies and 200 ppm for other ages.	Textiles: EN 16711-2:2015 Leather: EN ISO 17072-1:2019	Extractable: 0.5 ppm
18540-29-9	Chromium VI	Extractable: Leather: 3 ppm Textiles: 1 ppm	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). Important: Saudi Arabia and Egypt have a limit of Not Detected (< 0.5 ppm) in textiles.	Textiles: EN 16711-2:2015 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 may be used on its own. Aging test: ISO 10195:2018 (At brand discretion but required for footwear by India BIS).	Extractable: Leather: 3 ppm Textiles: 0.5 ppm
7440-48-4	Cobalt (Co)	Extractable: Adults: 4 ppm Children and babies: 1 ppm	Cobalt and its compounds can be used in alloys, pigments, dyestuff, and the production of plastic buttons.	All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019	Extractable: 0.5 ppm
7440-50-8	Copper (Cu)	Extractable: Adults: 50 ppm Children and babies: 25 ppm	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. Indonesia Ministerial Regulation No. 18 limits copper to 25 ppm the following products: towels, bedding, and handkerchiefs.	All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019	Extractable: 5 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Heavy Metals (Non-Jewelry), continued		See Appendix A for separate South Korea KC Mark soluble Heavy Metal requirements.		
7439-92-1	Lead (Pb)	Extractable: Adults: 1 ppm Children and babies: 0.2 ppm Total: 90 ppm	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 16711-2:2015 Leather: 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	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 16711-2:2015 Leather: EN ISO 17072-1:2019 Total: All materials except leather: EN 16711-1:2015 Leather: EN ISO 17072-2:2022	Extractable: 0.02 ppm Total: 0.1 ppm
7440-02-0	Nickel (Ni)	Extractable: 1 ppm Release (metal parts): Prolonged skin contact: 0.5 µg/cm²/week Eyewear frames: 0.5 µg/cm²/week	Nickel and its compounds can be used for plating alloys and improving corrosion-resistance and hardness of alloys. They can also occur as impurities in pigments and alloys.	Extractable: All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019 Release: EN 12472:2020 and EN 1811:2023 Release (eyewear frames): EN 16128:2025	Extractable: 0.1 ppm Release: 0.5 µg/cm²/week
7782-49-2	Selenium (Se)	Extractable: 500 ppm	Selenium and its compounds may be found in paints and inks. Important: Morocco and Egypt now have a 100 ppm limit.	All materials except leather: EN 16711-2:2015 Leather: EN ISO 17072-1:2019	Extractable: 50 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Heavy Metals (Jewelry)			Sample preparation for jewelry and wearables: Wax areas not intended for skin-contact: EN 1811:2023	
7440-36-0	Antimony (Sb)	Paints & Coatings: Extractable: 60 ppm	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	Extractable: 5 ppm
7440-38-2	Arsenic (As)	Paints & Coatings: Extractable: 25 ppm	Arsenic and its compounds can be used in paints and inks.	ASTM F963-23 as referenced in ASTM F2923:2020	Extractable: 5 ppm
7440-39-3	Barium (Ba)	Paints & Coatings: Extractable 1000 ppm	Barium and its compounds can be used in pigments for inks	ASTM F963-23 as referenced in ASTM F2923:2020	Extractable: 100 ppm
7440-43-9	Cadmium (Cd)	Substrates, Paints & Coatings: Total: Adults: 75 ppm Children: 40 ppm	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	ASTM F963-23 as referenced in ASTM F2923:2020	Total: 5 ppm
7440-47-3	Chromium (Cr)	Paints & Coatings: Extractable: 60 ppm	Chromium and its compounds can be used as pigments in paints. It can also be used as part of alloys such as stainless steel.	ASTM F963-23 as referenced in ASTM F2923:2020	Extractable: 5 ppm
7439-92-1	Lead (Pb)	Substrates, Paints & Coatings: Total: 90 ppm	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.	ASTM F963-23 as referenced in ASTM F2923:2020	Total: 10 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Heavy Metals (Jewelry), continued			Sample preparation for jewelry and wearables: Wax areas not intended for skin-contact: EN 1811:2023	
7439-97-6	Mercury (Hg)	Paints & Coatings: Extractable: 60 ppm	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	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	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	Selenium and its compounds may be found in paints and inks.	ASTM F963-23 as referenced in ASTM F2923:2020	Extractable: 50 ppm
	Monomers				
100-42-5	Styrene, Free	500 ppm	Styrene is a precursor for polymerization and may be present in various Styrene copolymers like plastic buttons. Free styrene is restricted, but total styrene is not.	Extraction in Methanol GC/MS, sonication at 60° C for 60 minutes	50 ppm
75-01-4	Vinyl Chloride	1 ppm	Vinyl Chloride is a precursor for polymerization and may be present in various PVC materials like prints, coatings, flip flops, and synthetic leather.	EN ISO 6401:2022	1 ppm

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	N-Nitrosamines				
62-75-9	N-nitrosodimethylamine (NDMA)	0.5 ppm each	Can be formed as by-product in the production of rubber and PU/TPU materials.	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)				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Organotin Compounds				
Various	Tributyltin (TBT)	0.5 ppm each	Class of chemicals combining tin and organics such as butyl and phenyl groups that should no longer be used in the production of apparel, footwear, and related products. Organotins are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (e.g., antibacterials), 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 and heat transfer material. AFIRM recommends restricting "Other Organotins" as a matter of best practice consistent with other industry restricted substances lists.	All materials: ISO 16179:2025 or EN ISO 22744-1:2020	0.1 ppm each
Various	Triphenyltin (TPhT)				
Various	Dibutyltin (DBT)	1 ppm each			
Various	Dioctyltin (DOT)				
Various	Monobutyltin (MBT)				
Various	Monooctyltin (MOT)				
Various	Tricyclohexyltin (TCyHT)				
Various	Trimethyltin (TMT)				
Various	Trioctyltin (TOT)				
Various	Tripropyltin (TPT)				
Various	Dimethyltin (DMT)	Other Organotins: 1 ppm each			
Various	Diphenyltin (DPhT)				
Various	Dipropyltin (DPT)				
Various	Monomethyltin (MMT)				
Various	Monophenyltin (MPhT)				
1461-25-2	Tetrabutyltin (TeBT)				
597-64-8	Tetraethyltin (TeET)				
3590-84-9	Tetraoctyltin (TeOT)				

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Ortho-phenylphenol				
90-43-7	Ortho-phenylphenol (OPP)	1000 ppm	OPP is used for its preservative properties in leather or as a carrier in polyester dyeing processes.	All materials: EN 17134-2:2023	100 ppm
	Ozone-depleting Substances				
Various	See Regulation (EU) 2024/590 for a complete list.	5 ppm	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

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Per- & Polyfluoroalkyl Substances (PFAS)				
Various	All PFAS as measured by total fluorine Note: Several U.S. states restrict total *organic* fluorine while some EU member states restrict total fluorine with the ability to demonstrate that fluorine > 50 ppm does not come from PFAS.	50 ppm	Regulations around the world restrict the use of PFAS in apparel and footwear, with partial or full exemptions for recycled materials, personal protective equipment, and outdoor apparel for severe wet conditions. Check with your brand customers for their exemption policy, which may vary by market. 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 B for a list of PFAS substances and CAS Numbers for which testing can be conducted to indicate whether PFAS chemistry is present above restricted levels due to intended use or unintended contamination. Note: As of 1 January 2026, French Decree No. 2025-1376 on the prevention of risks related to PFAS has entered into force. This regulation introduces stringent controls on PFAS in a wide range of consumer products, is aligned with proposed EU universal PFAS restriction limits, provides exemptions that include recycled materials, and provides a sell-off period for existing stock manufactured prior to 1 January 2026. Further guidance on the Decree is forthcoming.	EN 14582:2016 or ASTM D7359:2023 or EN 17813:2023 Methods quantify total fluorine (inorganic + organic). See AFIRM PFAS Phaseout Guidance for additional information about total versus total organic fluorine.	20 ppm for individual sample 50 ppm for max. composite of two samples
Various	Perfluorooctane Sulfonate (PFOS) and its salts	25 ppb total		Textiles, synthetic coated fabrics, excluding leathers and polymers: EN 17681-1:2025 alkaline hydrolysis Leather: EN ISO 23702-1:2023 Polymers: EN ISO 23702-1:2023 using THF extraction followed by methanol precipitation (1:1). Significantly higher findings of PFAS analytes are possible with EN 17681-1:2025, especially FTOHs, which does not necessarily mean PFAS were intentionally used. Check with your brand customers to understand whether re-tests of previously tested materials are necessary.	25 ppb total
Various	PFOS-related substances	1000 ppb total			1000 ppb total
Various	Perfluorooctanoic Acid (PFOA) and its salts	25 ppb total			25 ppb total
Various	PFOA-related substances	1000 ppb total			1000 ppb total
Various	Perfluorohexane-1-sulphonic acid (PFHxS) and its salts	25 ppb total			25 ppb total
Various	PFHxS-related substances	1000 ppb total			1000 ppb total
Various	C9-C14 Perfluorocarboxylic acids (PFCAs) and their salts	25 ppb total			25 ppb total
Various	C9-C14 PFCA-related substances	260 ppb total			260 ppb total
Various	PFHxA and its salts	25 ppb total			25 ppb total
Various	PFHxA-related substances	1000 ppb total			1000 ppb total
	Pesticides & Herbicides, Agricultural				
Various	See Appendix C for a complete list.	0.5 ppm each	May be found in natural fibers, primarily cotton.	All materials: EN ISO 15913:2003 or EPA 8081/EPA 8151A or BVL L 00.00-34:2010-09	0.5 ppm each

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Phthalates				
28553-12-0	Di-Iso-nonylphthalate (DINP)	500 ppm each Total: 1000 ppm	Esters of ortho-phthalic acid (Phthalates) are a class of organic compound commonly added to plastics to increase flexibility. They are sometimes used to facilitate the molding of plastic by decreasing its melting temperature. Phthalates can be found in: • Flexible plastic components (e.g., PVC) • Print pastes • Adhesives • Plastic buttons • Plastic sleevings • 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. Suppliers should assume that the AFIRM RSL includes all phthalates on the SVHC list—whether itemized here or not—since the list is updated frequently. Other ortho-phthalates (like DPHP) may have similar toxicological characteristics to those listed. Before using any unlisted ortho-phthalates, please make sure to have a sound toxicology study from your chemical supplier. If you are unsure, please communicate with your brand customer.	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-octylphthalate (DNOP)				
117-81-7	Di(2-ethylhexyl)-phthalate (DEHP)				
26761-40-0	Diisodecylphthalate (DIDP)				
85-68-7	Butylbenzylphthalate (BBP)				
84-74-2	Dibutylphthalate (DBP)				
84-69-5	Diisobutylphthalate (DIBP)				
84-75-3	Di-n-hexylphthalate (DnHP)				
84-66-2	Diethylphthalate (DEP)				
131-11-3	Dimethylphthalate (DMP)				
131-18-0	Di-n-pentyl phthalate (DPENP)				
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	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear				
71850-09-4	Diisohexyl phthalate (DIHxP)				
68515-42-4	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)				
84777-06-0	1,2-Benzenedicarboxylic acid Dipentyl ester, branched and linear				
68648-93-1	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				
68515-51-5					
776297-69-9	n-Pentyl-isopentylphthalate (nPIPP)				
26040-51-7	Bis(2-ethylhexyl) tetrabromophthalate				
53306-54-0	Bis(2-propylheptyl) phthalate (DPHP)	For informational purposes only. AFIRM recommends testing to assess content levels.			

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product		Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Polycyclic Aromatic Hydrocarbons (PAHs)					
83-32-9	Acenaphtene	No individual restric-tion	Total: 10 ppm	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 for screen prints. PAHs can be present as impurities in Carbon Black. They also may be formed from thermal 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
208-96-8	Acenaphthylene					
120-12-7	Anthracene					
191-24-2	Benzo(g,h,i)perylene					
86-73-7	Fluorene					
206-44-0	Fluoranthene					
193-39-5	Indeno(1,2,3-cd)pyrene					
91-20-3	Naphthalene**					
85-01-8	Phenanthrene					
129-00-0	Pyrene					
56-55-3	Benzo(a)anthracene	1 ppm each Child care articles: 0.5 ppm each				
50-32-8	Benzo(a)pyrene					
205-99-2	Benzo(b)fluoranthene					
192-97-2	Benzo[e]pyrene					
205-82-3	Benzo[j]fluoranthene					
207-08-9	Benzo(k)fluoranthene					
218-01-9	Chrysene					
53-70-3	Dibenzo(a,h)anthracene					

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Quinoline				
91-22-5	Quinoline	50 ppm	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. It is not expected in non-dyed materials.	All materials: DIN 54231:2022 with methanol extraction at 70° C	10 ppm
	Solvents & Residuals				
68-12-2	Dimethylformamide (DMFa)	500 ppm	Solvent used in plastics, rubber, and polyurethane (PU) coating. Water-based PU does not contain DMFa and is therefore preferable.	Textiles: EN 17131-1:2025 All other materials: ISO 16189:2021	50 ppm each
75-12-7	Formamide	1000 ppm each Play/baby/yoga mats: 200 ppm	Byproduct in the production of EVA foams. Note: China Standard TYT 3802.1-2024, *Technical requirement and test method of fitness yoga equipment—Part 1: Yoga mat*, specifies a limit of 200 ppm.		
127-19-5	Dimethylacetamide (DMAC)	1000 ppm each	Solvent used in the production of elastane fibers and sometimes as substitute for DMFa.		
872-50-4	N-Methyl-2-pyrrolidone (NMP)		Industrial solvent used in 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.		

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	UV Absorbers / Stabilizers				
3846-71-7	UV 320	1000 ppm each	Used as UV absorbers for plastics (PVC, PET, PC, PA, ABS, PU and other polymers), coatings, resins, rubber, and PU foam materials such as open cell foams for padding.	ISO 24040:2022 with extraction in THF, analysis by GC/MS Note: Stabilized THF should be used for extraction.	50 ppm
3864-99-1	UV 327				
3896-11-5	UV 326				
3147-75-9	UV 329				
36437-37-3	UV 350				
25973-55-1	UV 328	100 ppm			
2440-22-4	Drometrizole	For informational purposes only. AFIRM recommends testing to assess content levels.			

AFIRM Restricted Substances List

CAS No.	Substance	Limits Component Materials in Finished Product	Potential Uses & Additional Information	Suitable Test Method Sample Preparation & Measurement	Reporting Limit Limits above which test results should be reported
	Volatile Organic Compounds (VOCs)				
71-43-2	Benzene	5 ppm	The VOCs in Appendix D represent a broad range of potentially harmful substances that can be semiquantified using the prescribed headspace method. Upon conducting this test, substances that also appear in other sections of the RSL with specific test methods and limit values may be detected, and further testing may be appropriate to assess product conformance. The substances in Appendix D should not be used in textile auxiliary chemical preparations. They are associated with solvent-based processes such as solvent-based polyurethane coatings, glues/ adhesives, and polymer manufacturing. They should not be used for any kind of facility or spot cleaning. Individual VOCs should be reported if found > 100 ppm and confirmation testing may be required, especially for substances also included in other sections of the RSL with dedicated limits. See AFIRM VOC Testing Guidance for additional information.	For general VOC screening: GC/MS headspace 45 minutes at 120° C	5 ppm
Various	Other: See Appendix D for a complete list.	Total: 500 ppm			Other: 100 ppm each

Appendix A. South Korea KC Mark Soluble Heavy Metal Requirements

NOTE: South Korea KC Mark requirements apply to the migration of Heavy Metals from surface coatings/paints, synthetic resins, and paper materials in products intended to be placed in the mouth of children and products intended for infants.

CAS No.	Substance	Limits	Suitable Test Method
7440-36-0	Antimony (Sb)	60 ppm	ISO 8124-3:2020 with Amendment 1 of 2023
7440-38-2	Arsenic (As)	25 ppm	
7440-39-3	Barium (Ba)	1000 ppm	
7440-43-9	Cadmium (Cd)	75 ppm	
7440-47-3	Chromium (Cr)	60 ppm	
7439-92-1	Lead (Pb)	90 ppm	
7439-97-6	Mercury (Hg)	60 ppm	
7782-49-2	Selenium (Se)	500 ppm	

Appendix B. Per- and Polyfluoroalkyl Substances (PFAS)

NOTE: This list is a subset of PFAS and is not exhaustive. Findings would indicate intentional use or significant contamination.

CAS No.	PFAS Name
	PFOS and Its Salts
1763-23-1	Perfluorooctanesulfonic acid (PFOS)
2795-39-3	Perfluorooctanesulfonic acid, potassium salt (PFOS-K)[A]
29457-72-5	Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)[A]
29081-56-9	Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH_4) [A]
70225-14-8	Perfluorooctane sulfonate diethanolamine salt (PFOS-$NH(C_2H_5OH)_2$) [A]
56773-42-3	Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-$N(C_2H_5)_4$)[A]
251099-16-8	Didecyldimethyl ammonium perfluorooctane sulfonate (PFOS-$N(C_{10}H_{21})_2(CH_3)_2$)[A]
	PFOS-related Substances
4151-50-2	N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)
31506-32-8	N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)
1691-99-2	2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)
24448-09-7	2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)
307-35-7	Perfluoro-1-octanesulfonyl fluoride (POSF)[A]
754-91-6	Perfluorooctane sulfonamide (PFOSA)
	PFOA and Its Salts
335-67-1	Perfluorooctanoic acid (PFOA)
335-95-5	Sodium perfluorooctanoate (PFOA-Na)[B]
2395-00-8	Potassium perfluorooctanoate (PFOA-K)[B]
335-93-3	Silver perfluorooctanoate (PFOA-Ag)[B]
335-66-0	Perfluorooctanoyl fluoride (PFOA-F)[B]
3825-26-1	Ammonium pentadecafluorooctanoate (APFO)[B]
	PFOA-related Substances
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)
376-27-2	Methyl perfluorooctanoate (Me-PFOA)[B]
3108-24-5	Ethyl perfluorooctanoate (Et-PFOA)[B]
678-39-7	2-Perfluorooctylethanol (8:2 FTOH)
27905-45-9	1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)[C]
1996-88-9	1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)[C]
27854-31-5	2H,2H-Perfluorodecanoic acid (H_2PFDA)*

CAS No.	PFAS Name
	PFHxS and Its Salts
355-46-4	Perfluorohexane Sulfonic acid (PFHxS)
3871-99-6	Perfluorohexane Sulfonic acid, potassium salt (PFHxS-K)[D]
55120-77-9	Perfluorohexane Sulfonic acid, lithium salt (PFHxS-Li)[D]
68259-08-5	Perfluorohexane Sulfonic acid, ammonium salt (PFHxS-NH_4)[D]
82382-12-5	Perfluorohexane Sulfonic acid, sodium salt (PFHxS-Na)[D]
	PFHxS-related Substances
68259-15-4	N-Methylperfluoro-1-hexanesulfonamide (N-Me-FHxSA)
41997-13-1	Perfluorohexane sulfonamide (PFHxSA)
	C9 – C14 PFCAs and Their Salts
375-95-1	Perfluorononanoic Acid (PFNA, C9-PFCA)
335-76-2	Perfluorodecanoic Acid (PFDA, C10-PFCA)
2058-94-8	Perfluoroundecanoic Acid (PFUnA, C11-PFCA)
307-55-1	Perfluorododecanoic Acid (PFDoA, C12-PFCA)
72629-94-8	Perfluorotridecanoic Acid (PFTrDA, C13-PFCA)
376-06-7	Perfluorotetradecanoic Acid (PFTeDA, C14-PFCA)
172155-07-6	Perfluoro-3-7-dimethyloctanecarboxylate (PF-3,7-DMOA)
	C9 – C14 PFCA-related Substances
17741-60-5	1H,1H,2H,2H-Perfluorododecyl acrylate (10:2 FTA)[E]
2144-54-9	1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)[E]
865-86-1	1H,1H,2H,2H-Perfluorododecanol (10:2 FTOH)
34598-33-9	2H,2H,3H,3H-Perufloroundecanoic acid (H4PFUnA)
678-39-7	2-Perfluorooctylethanol (8:2 FTOH)
39239-77-5	1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)
120226-60-0	1H,1H,2H,2H-Perfluorododecanesulphonic acid (10:2 FTS)
2043-54-1	1H,1H,2H,2H-Perfluorododecyl iodide (10:2 FTI)*
30046-31-2	1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)*
	PFHxA and Its Salts
307-24-4	Perfluorohexanoic Acid (PFHxA, C6-PFCA)
	PFHxA-related Substances
17527-29-6	1H,1H,2H,2H-Perfluorooctyl acrylate (6:2 FTA)[F]
2144-53-8	1H,1H,2H,2H-Perfluorooctyl methacrylate (6:2 FTMA)[F]
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)
647-42-7	1H,1H,2H,2H-Perfluorooctanol (6:2 FTOH)

NOTE: The substances in red are included as they appear in the regulation. However, as they are hydrolysed during the testing, they will never be detected or reported. Instead, they will be reported as the related substances as shown, each of which is also included in the regulation.

* Cannot be detected by the 17681-1:2025 alkaline hydrolysis method, and it is important to check your supply chain to make sure it is not present in input chemistry.

A Converted to PFOS
B Converted to PFOA
C Converted to 8:2 FTOH
D Converted to PFHxS
E Converted to 10:2 FTOH
F Converted to 6:2 FTOH

Appendix C. Pesticides and Herbicides, Agricultural

CAS No.	Pesticide Name	CAS No.	Pesticide Name	CAS No.	Pesticide Name
93-72-1	2-(2,4,5-trichlorophenoxy) propionic acid, its salts and compounds; 2,4,5-TP	333-41-5	Diazinone	465-73-6	Isodrine
		1085-98-9	Dichlofluanide	4234-79-1	Kelevane
93-76-5	2,4,5-T	120-36-5	Dichloroprop	143-50-0	Kepone
94-75-7	2,4-D	115-32-2	Dicofol	58-89-9	Lindane
309-00-2	Aldrine	141-66-2	Dicrotophos	121-75-5	Malathione
86-50-0	Azinophosmethyl	60-57-1	Dieldrine	94-74-6	MCPA
2642-71-9	Azinophosethyl	60-51-5	Dimethoate	94-81-5	MCPB
4824-78-6	Bromophos-ethyl	88-85-7	Dinoseb, its salts and acetate	93-65-2	Mecoprop
2425-06-1	Captafol	63405-99-2	DTTB (4, 6-Dichloro-7 (2,4,5-trichloro-phenoxy) -2-Trifluoro methyl benz imidazole)	10265-92-6	Metamidophos
63-25-2	Carbaryl			72-43-5	Methoxychlor
510-15-6	Chlorbenzilat	115-29-7	Endosulfan	2385-85-5	Mirex
57-74-9	Chlordane	959-98-8	Endosulfan I (alpha)	6923-22-4	Monocrotophos
6164-98-3	Chlordimeform	33213-65-9	Endosulfan II (beta)	298-00-0	Parathion-methyl
470-90-6	Chlorfenvinphos	72-20-8	Endrine	1825-21-4	Pentachloroanisole
1897-45-6	Chlorthalonil	66230-04-4	Esfenvalerate	7786-34-7	Phosdrin/Mevinphos
56-72-4	Coumaphos	106-93-4	Ethylendibromid	72-56-0	Perthane
68359-37-5	Cyfluthrin	56-38-2	Ethylparathione; Parathion	31218-83-4	Propethamphos
91465-08-6	Cyhalothrin	51630-58-1	Fenvalerate	41198-08-7	Profenophos
52315-07-8	Cypermethrin	Various	Halogenated naphthalenes, including polychlorinated naphthalenes (PCNs)	13593-03-8	Quinalphos
78-48-8	S,S,S-Tributyl phosphorotrithioate (Tribufos)			82-68-8	Quintozene
52918-63-5	Deltamethrin	76-44-8	Heptachlor	8001-50-1	Strobane
53-19-0	DDD	1024-57-3	Heptachloroepoxide	297-78-9	Telodrine
72-54-8		36355-01-8	Hexabromobiphenyl	8001-35-2	Toxaphene
3424-82-6	DDE	319-84-6	a-Hexachlorocyclohexane with & without Lindane	731-27-1	Tolylfluanide
72-55-9		319-85-7	b-Hexachlorocyclohexane with & without Lindane	1582-09-8	Trifluraline
50-29-3	DDT	319-86-8	g-Hexachlorocyclohexane with & without Lindane		
789-02-6		118-74-1	Hexachlorobenzene		

Appendix D. Volatile Organic Compounds (VOCs)

Existing VOCs from Previous Versions of the AFIRM RSL		VOCs Restricted in Other Sections of the AFIRM RSL		VOCs Added to the 2025 AFIRM RSL	
CAS No.	**VOC Name**	**CAS No.**	**VOC Name**	**CAS No.**	**VOC Name**
75-15-0	Carbon Disulfide	95-50-1	1,2-Dichlorobenzene	96-18-4	1,2,3-trichloropropane
56-23-5	Carbon Tetrachloride	106-46-7	1,4-Dichlorobenzene	78-87-5	1,2,Dichloropropane
67-66-3	Chloroform	872-50-4	1-Methyl-2-pyrrolidione	111-15-9	2-Ethoxyethyl acetate
108-94-1	Cyclohexanone	617-94-7	2-phenyl-2-propanol	149-57-5	2-Ethylhexane acid
107-06-2	1,2-Dichloroethane	98-86-2	Acetophenone	62-53-3	Aniline
75-35-4	1,1-Dichloroethylene	75-12-7	Formamide	111-96-6	Bis(2-methoxyethyl)ether
100-41-4	Ethylbenzene	127-19-5	N,N-Dimethylacetamide (DMAC)	78-59-1	Isophorone
76-01-7	Pentachloroethane	91-20-3	Naphthalene	108-95-2	Phenol
630-20-6	1,1,1,2- Tetrachloroethane	68-12-2	N-N-Dimethylformamide (DMFa)	109-99-9	THF
79-34-5	1,1,2,2- Tetrachloroethane	100-42-5	Styrene	106-94-5	1-bromopropane
127-18-4	Tetrachloroethylene (PERC)			70657-70-4	1-PG2MEA 1-Propanol,2-methoxy-, acetate)
108-88-3	Toluene			111-77-3	2-(2-Methoxyethoxy)ethanol
71-55-6	1,1,1- Trichloroethane			110-80-5	2-ethoxyethanol
79-00-5	1,1,2- Trichloroethane			109-86-4	2-Methoxyethanol EGME (ethylene glycol monomethyl ether)
79-01-6	Trichloroethylene				
1330-20-7	Xylenes (meta-, ortho-, para-)			1589-47-5	2-Methoxypropan-1-ol
108-38-3				110-71-4	EGDME (Ethylene glycol dimethyl ether)
95-47-6				110-49-6	EGMEA (Ethylene glycol monomethyl ether acetate)
106-42-3				67-72-1	Hexachloroethane
				75-09-2	Merhylene chloride (dichloromethane)
				110-54-3	n-hexane
				112-49-2	TEGDME (Triethylene glycol dimethyl ether)

AG

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