



Haglöfs

Restricted Substances List (RSL) v13

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Introduction

Haglöfs requires that its products, and the raw materials used to construct those products, are manufactured with regard for the safety of consumers and factory workers, as well as the wider environment. The management of chemicals in the supply chain directly impacts these areas.

The Restricted Substances List (RSL) provides details of chemicals and other materials that are restricted by Haglöfs, and allowable chemical limits for products placed on the market. It is expected that Haglöfs' suppliers use industry best practices to proactively manage chemicals, meeting the requirements of the RSL and relevant regulations in the markets in which we operate as well as providing safeguards for consumers, workers and the environment.

- The Haglöfs RSL applies to all materials, components, finished products and packaging manufactured and sold under the Haglöfs brand name whether sourced directly or by Haglöfs licensee partners
- All promotional items bearing Haglöfs logo must meet the requirements listed in the RSL and may be subject to further requirements in the case that items do not fall within typical Haglöfs product categories (get in touch with your Haglöfs contact if in any doubt)
- Haglöfs reserves the right to request testing of any material or product at any time against this RSL
- Suppliers should certify their compliance to the Haglöfs RSL by signing the *Supplier Compliance Declaration*

Restricted Substances

Restricted Substances List

Products (See Appendix 1)

Haglöfs follows the bluesign® RSL for all products and currently refers to version 13. The bluesign® RSL is updated periodically, refer to the bluesign® website for the latest version. www.bluesign.com/en/downloads

Packaging (See Appendix 2)

In the case of packaging there are no specific bluesign® guidelines therefore Haglöfs follows the AFIRM Group RSL for packaging. Refer to the AFIRM Group website for the latest version of the RSL. Versions are also available in Spanish, Chinese and Vietnamese. www.afirm-group.com



Additional requirements

In addition to the restrictions outlined in Appendix 1 and 2 the following requirements must be met:

- Biocides and anti-microbial finishes
 - The use of biocides or anti-microbial finishes as odour control or to inhibit growth of mould during storage/transportation is prohibited.
- Per- and polyfluoroalkyl substances (PFAS)
 - The use of PFAS as a water or stain repellent is prohibited except for limited use cases which have been approved by Haglöfs.
 - Where silicone based DWR alternatives are used it is prohibited that the cyclosiloxanes (D4, D5, D6) are present
- Polyvinyl chloride (PVC)
 - The use of PVC is prohibited except for limited use cases which have been approved by Haglöfs
- Animal-based materials
 - The use of animal-based materials is restricted, see the *Haglöfs Animal Welfare Policy* for more details.
- Oxo-degradable plastics
 - The use of oxo-degradable plastics in Haglöfs packaging is prohibited.

EU REACH Substances of Very High Concern (SVHC)

REACH is the regulatory framework for chemicals in the European Union (EU) administered by the European Chemical Agency (ECHA). Substances that are found to be particularly hazardous are added to a Candidate List of Substances of Very High Concern (SVHC).

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 enough 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.

ECHA periodically updates the Candidate List and some SVHCs may become the subject of authorisation requirements or more stringent legislation. The most current version can be found at www.echa.europa.eu/candidate-list-table

Suppliers must stay up to date with any additions to the list and notify Haglöfs immediately if substances found on this list are identified in materials or products.

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 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. 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>

Suppliers must stay up to date with any additions to the list and notify Haglöfs immediately if substances found on this list are identified in materials or products.



Supplier's Responsibility

It is the supplier's responsibility to comply with the RSL, avoiding the use of harmful or illegal chemicals in the making of Haglöfs products. RSL compliance is included in, or additional to, all legal partnership agreements relating to the manufacture of Haglöfs product lines.

Haglöfs expects suppliers to:

- provide evidence that materials, components, finished products or packaging supplied meet the RSL - responsibility for testing and associated costs lies with the supplier
- ensure that chemicals are handled safely by workers and that any emissions from facilities such as waste and wastewater, and the handling of such emissions comply with all applicable environmental laws and regulations
- provide access to Haglöfs representatives to visit any locations used in the production of materials, components, finished products or packaging for Haglöfs

With specific reference to the EU REACH SVHC Candidate list and the California Proposition 65 substances list the supplier must notify Haglöfs immediately if substances found on either of these lists are identified in materials, products or packaging. It is the supplier's responsibility to keep up to date with any changes to the lists.

Haglöfs conducts a risk-based testing program and reserves the right to request that suppliers provide samples and/or test against the RSL at any time.

Haglöfs will assess any failure against the RSL standards on a case by case basis and take appropriate action. In the event of a test failure, suppliers will be required to conduct failure analysis and, where appropriate, provide an action plan to resolve the issue for current and/or future production. Suppliers may be required to remediate products, remake products or replace affected components at their own cost.

Tier 1 (finished-goods) factories are required to maintain records of testing on materials from local suppliers as well as those produced in-house.

Testing

It is expected that suppliers can provide evidence that their products meet the RSL. Responsibility for testing and associated costs lies with the supplier.

Suppliers should routinely test their materials for compliance against the Haglöfs RSL as well as related lists such as the REACH SVHC List and the California Proposition 65 List, supplying evidence of this testing as and when requested by Haglöfs.

The Product and Packaging Testing Matrices (Appendix 1b and 2b) outline the recommended tests for different categories of materials based on the likelihood of restricted substances being detected. Suppliers should use this as a tool to guide their efforts to manage restricted substances.



All material and product testing conducted for the purposes of assessing compliance with the Haglöfs RSL should be carried out by testing institutes that are ISO 17025 certified and are part of a global network which can ensure standard methods and level of quality.

Test results are valid for one year from the test date unless otherwise stated.

Certifications will be accepted in lieu of chemical testing as follows:

- **bluesign®** The supplier can provide a copy of a bluesign® certificate for the production facility where the material was made **AND** the fabric or trim is listed with the appropriate item number/code in the blueguide®
- **Oeko-tex®** The supplier can provide a copy of the STeP by Oeko-tex® certificate for the production facility where the material was made **AND** the supplier can provide a copy of the Standard 100 by Oeko-tex® certificate for the fabric or trim item (or Leather Standard by Oeko-tex® certificate for leather items).

Chemical Input Management

Managing restricted substances includes controlling the chemical formulations that enter facilities, suppliers should use the systems below to screen for compliant formulations.

bluesign®FINDER: A database called the bluesign® FINDER can be used to select and screen for approved chemicals. For more information visit www.bluesignFINDER.com

ZDHC Manufacturing Restricted Substances List (MRSL): Manufacturers should contact their chemical suppliers and communicate the ZDHC MRSL standard to them. Chemical suppliers should be able to confirm which of their products meet this standard. A copy of the most current ZDHC MRSL can be downloaded from the ZDHC website www.roadmaptozero.com/mrsl_online

For any questions about the RSL please contact productcompliance@haglofs.se

Appendix 1a: Product Restricted Substances List (RSL)

The bluesign® RSL is an extract of the bluesign® system substances list (BSSL) consumer safety limits and defines minimum requirements for chemical substances in articles.

Usage range

Usage ranges classify consumer goods according to their consumer safety relevance. Three usage ranges (A, B, C) are defined with A being the most stringent category concerning limit values/bans:

- A: Next to skin use and baby articles (0 to 3 years)
- B: Occasional skin contact
- C: No skin contact

Testing methods

The testing methods listed are the recommended ones. The testing methods column consists of two entries: sample preparation, e.g. extraction, digestion, derivatization and the test method, i.e. the actual measurement.

Depending on their availability international or national standards are also given for several substances and these methods may be applied. Other accredited methods can only be applied if it can be verified that equivalent results are obtained.

Details of the respective sample preparation methods can be found in the table below:

Sample preparation	Solvent(s)	Temperature (°C)	Time (min)	Other requirements
Extraction with KOH	Potassium Hydroxide (1M)	90	12-15h	Derivatization with Acetic anhydride
Extraction with MeOH	Methanol	70	60	Ultrasonic bath
Extraction with THF	Tetrahydrofuran	40	60	
Extraction with DCM	Dichloromethane	40	60	Ultrasonic bath
Extraction with MTBE	Methyl tert-butyl ether	60	60	Ultrasonic bath
Extraction with water	Deionized water			
Extraction with MeOH/Acetonitrile	Methanol/Acetonitrile (1:1)	70	30	Ultrasonic bath

Extraction with Potassium carbonate solution	Potassium carbonate solution	Room temp.	60	Ultrasonic bath
Extraction with THF/Acetone	Tetrahydrofuran/Acetone	60	60	Ultrasonic bath, derivatization with Acetonitrile
Extraction with Acetone	Acetone	70	60	Ultrasonic bath
Extraction with Hexane/Dichloroethane	Hexane/Dichloroethane	70	60	
ASE - Accelerated Solvent Extraction	Acetone/Hexane (1:1)	100	-	
ASE - Accelerated Solvent Extraction	Ethyl acetate	40	-	
Soxhlet Extraction	Acetone/Hexane (1:1)	-	480	
Headspace	-	120	45	Purge & trap is recommended
DIN EN ISO 105-E04 (2013)	Acidic sweat solution	37	60	Textile to liquor ratio 1:50

Restricted Parameters

Parameter	Limit	Test Method// Sample Preparation
pH	Non-leather products: 4.0-7.5	ISO 3071 (2005)
	Leather products: 3.2-4.5	ISO 4045 (2018)
Odor	No unpleasant odor shall be emitted from the products	SNV 195 651
Color Fastness Properties		
Color fastness to perspiration	Textiles dyed with disperse or metal complex dyes: at least 3 – 4, the goal is > 4	ISO 105-E04 (2013)
Color fastness to saliva and perspiration	Fast (corresponds to level 5 of 5-step grey scale described in ISO 105-A02 (1993))	§64 LFGB BVL B 82.10-1 in combination with DIN 53160-1 and -2 (2010)

Restricted Substances

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Aldehydes									
Formaldehyde	50-00-0	Leather	Usage ban	15	75	300	mg/kg	EN ISO 17226-2 (2019) with EN ISO 17226-1 (2021) confirmation method in case of interferences.	Test method: Alternatively, EN ISO 17226-1 (2021) can be used on its own.
		Textiles Metal parts Polymer parts Down/feather articles	Limitation	15	75	300	mg/kg	ISO 14184-1 (2011)	
Alkylphenolethoxylates (APEOs)									
<i>Nonylphenol ethoxylates (NPEO)</i>	Several	Textiles Metal parts Polymer parts Down/feather articles	Usage ban	100		mg/kg	EN ISO 18254-1 (2016) with determination of APEO using LC/MS or LC/MS/MS	For sum of all allocated Members/Substances (if traces above 10 ppm are detected the source of contamination has to be identified and phased out)	
		Leather	Usage ban	100		mg/kg	Sample prep. and analysis using EN ISO 18218-1 (2015) with quantification according to EN ISO 18254-1 (2016)		
<i>Octylphenol ethoxylates (OPEO)</i>	Several	Leather	Usage ban	100		mg/kg	See NPEO		
		Textiles Metal parts Polymer parts Down/feather articles	Usage ban	100		mg/kg	See NPEO		

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Alkylphenols (APs)									
Nonylphenol (NP), mixed isomers	Several	Textiles Leather	Usage ban	10			mg/kg	EN ISO 21084 (2019)	For sum of all allocated Members/Substances
		Metal parts Polymer parts Down/feather articles	Usage ban	10			mg/kg	EN ISO 21084 (2019), modified // 1 g sample / 20 ml THF with Sonication for 60 min at 70°C	
Octylphenol (OP), mixed isomers	Several	Textiles Leather	Usage ban	10			mg/kg	EN ISO 21084 (2019)	For sum of all allocated Members/Substances
		Metal parts Polymer parts Down/feather articles	Usage ban	10			mg/kg	EN ISO 21084 (2019), modified // 1 g sample / 20 ml THF with Sonication for 60 min at 70°C	
Amines									
Aniline - free content	62-53-3	Leather	Usage ban	30			mg/kg	EN ISO 17234-1 (2015)	In case aniline is detected the test needs to be repeated without addition of sodium dithionite
		Textiles Polymer parts	Usage ban	30			mg/kg	EN ISO 14362-1 (2017)	
Arylamines									
Arylamines (including corresponding salts)	Several	Leather	Usage ban	20 each			mg/kg	EN ISO 17234-1 (2015) EN ISO 17234-2 (2011) // for azo colorants which may release 4-Aminoazobenzene	Single substances listed in Annex
		Textiles Metal parts Polymer parts Down/feather articles	Usage ban	20 each			mg/kg	EN ISO 14362-1 (2017) EN ISO 14362-3 (2017) // for azo colorants which may release 4-Aminoazobenzene	(as substance for example in PU, and as decomposition product of azo colorants which, by reductive cleavage of one or more azo groups, may release one or more of the aromatic amines)

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Biocides									
Dimethylfumarate	624-49-7	All	Usage ban	0.1			mg/kg	ISO 16186 (2021)	
o-Phenylphenol and its salts	Several	Leather	Limitation	50	100	200	mg/kg	DIN 50009 (2021)	
		Textiles	Limitation	50			mg/kg	DIN 50009 (2021)	
Chlorinated Benzenes and Toluenes									
Chlorinated Benzenes and Toluenes	Several	All	Usage ban	5.0			mg/kg	EN 17137 (2018)	For sum of all allocated chlorinated benzenes and toluenes // additional regulation for each allocated Member/Substance - Usage ban 1.0 mg/kg Single substances listed in Annex

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Chlorinated Phenols									
Chlorinated Phenols	Several	All	Usage ban	See limits of substance groups below				DIN 50009 (2021)	Usage ban for every allocated Member/Substance
									Single substances listed in Annex
									For sum of all allocated PCPs
									For sum of all allocated TeCPs
									For sum of all allocated TriCPs
<i>Pentachlorophenol, its salts, esters and compounds</i>	Several	All	Usage ban	0.05	0.5	0.5	mg/kg		For sum of all allocated PCPs
<i>Tetrachlorophenol, its salts and compounds</i>	25167-83-3	All	Usage ban	0.05	0.5	0.5	mg/kg		For sum of all allocated TeCPs
<i>Trichlorophenol, all isomers</i>	25167-82-2	All	Usage ban	0.05	0.5	0.5	mg/kg		For sum of all allocated TriCPs
<i>Mono- and Dichlorophenols</i>	Several	All	Usage ban	1.0			mg/kg		For sum of all allocated Mono- and DiCPs
Colorants									
<i>Colorants banned for other reasons</i>	Several	All	Usage ban	20 each			mg/kg	DIN 54231 (2005)	Single substances listed in Annex
<i>Colorants with allergenic potential</i>	Several	All	Usage ban	20 each			mg/kg	DIN 54231 (2005)	
<i>Colorants with carcinogenic potential</i>	Several	All	Usage ban	20 each			mg/kg	DIN 54231 (2005)	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Dioxins and Furans									
Dioxins and Furans - Group 1 and 2	Several	All	Usage ban	5.0			µg/kg	EPA 8290A	For sum of all allocated Members/Substances to Group 1 and 2 Single substances listed in Annex
Dioxins and Furans - Group 1	Several	All	Usage ban	1.0			µg/kg		For sum of all allocated Members/Substances to Group 1 Single substances listed in Annex
Dioxins and Furans - Group 3	Several	All	Usage ban	95			µg/kg	EPA 8290A	For sum of all allocated Members/Substances to Group 3 - official regulation for sum of all allocated Members/Substances to Group 1, 2 and 3 - 100 µg/kg Single substances listed in Annex
Dioxins and Furans - Group 4 and 5	Several	All	Usage ban	5.0			µg/kg		For sum of all allocated Members/Substances to Group 4 and 5 Single substances listed in Annex
Dioxins and Furans - Group 4	Several	All	Usage ban	1.0			µg/kg		For sum of all allocated Members/Substances to Group 4 Single substances listed in Annex
Fibers									
Asbestos	Several	All	Usage ban	Not detected				REM/EDX BGI 505-46 U.S. EPA/600/R-93/116	Single substances listed in Annex

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Flame retardants									
Flame retardants	Several	All	Usage ban	5.0 each			mg/kg	EN ISO 17881-1 (2016) for brominated flame retardants EN ISO 17881-2 (2016) for phosphorus flame retardants	Single substances listed in Annex
Chlorinated Paraffins, all chain lengths	Several	Textiles Metal parts Polymer parts Down/feather articles	Usage ban	5.0 each			mg/kg	ISO 22818 (2021)	Single substances listed in Annex
		Leather	Usage ban	100 each			mg/kg	ISO 18219 (2021)	
Glycols									
2-Ethoxyethanol	110-80-5	Plastic article	Usage ban	5.0			mg/kg	GC-MS // 2-Step extraction with THF and Methanol	
		Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
2-Ethoxyethyl acetate	111-15-9	Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
		Plastic article	Usage ban	5.0			mg/kg	GC-MS // 2-Step extraction with THF and Methanol	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Glycols (continued)									
2-Methoxy-1-propanol	1589-47-5	Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
		Plastic article	Usage ban					GC-MS // 2-Step extraction with THF and Methanol	
2-Methoxyethanol	109-86-4	Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
		Plastic article	Usage ban					GC-MS // 2-Step extraction with THF and Methanol	
2-Methoxyethyl acetate	110-49-6	Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
		Plastic article	Usage ban					GC-MS // 2-Step extraction with THF and Methanol	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Glycols (continued)									
2-Methoxypropyl acetate	70657-70-4	Plastic article	Usage ban	5.0			mg/kg	GC-MS // 2-Step extraction with THF and Methanol	
		Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
Bis(2-methoxyethyl) ether	111-96-6	Plastic article	Usage ban	5.0			mg/kg	GC-MS // 2-Step extraction with THF and Methanol	
		Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
Ethylene glycol dimethyl ether	110-71-4	Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	
		Plastic article	Usage ban	5.0			mg/kg	GC-MS // 2-Step extraction with THF and Methanol	
Triethylene glycol dimethyl ether	112-49-2	Plastic article	Usage ban	5.0			mg/kg	GC-MS // 2-Step extraction with THF and Methanol	
		Textiles Metal parts Rubber articles Down/feather articles Leather	Usage ban	5.0			mg/kg	GC-MS // Extraction with Methanol	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Halogenated Biphenyls, halogenated Terphenyls and halogenated Naphthalenes									
<i>Polybrominated Biphenyls</i>	59536-65-1	All	Usage ban		5.0		mg/kg	EN ISO 17881-1 (2016) for brominated compounds	For sum of all allocated Members/Substances
<i>Polybrominated Naphthalenes</i>	Several	All	Usage ban		1.0		mg/kg	ISO/TR 17881-3 (2018) for chlorinated compounds	For sum of all allocated Members/Substances
<i>Polybrominated Terphenyls</i>	Several	All	Usage ban		1.0		mg/kg		For sum of all allocated Members/Substances
<i>Polychlorinated Biphenyls</i>	1336-36-3	All	Usage ban		1.0		mg/kg		For sum of all allocated Members/Substances
<i>Polychlorinated Naphthalenes</i>	Several	All	Usage ban		1.0 each		mg/kg		Usage ban 1.0 mg/kg for every allocated Member/Substance
<i>Polychlorinated Terphenyls</i>	61788-33-8	All	Usage ban		1.0		mg/kg		For sum of all allocated Members/Substances
Halogenated Diarylalkanes	Several	All	Usage ban		1.0 each		mg/kg	GC-MS // Extraction following DIN EN 62321-6 (2016)	Single substances listed in Annex
Isocyanates									
Isocyanates	Several	All	Limitation		1.0		mg/kg	EN 13130-8 (2004)	Free content applies to sum of all allocated isocyanates Single substances listed in Annex

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Metals									
Antimony, its salts and compounds	Several	Leather	Limitation	5	10	10	mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	As extractable metal content // Usage as flame retardant: bluesign® CRITERIA for flame retardants have to be followed
		Textiles	Limitation	5	10	10	mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	
		Metal parts Polymer parts Down/feather articles	Limitation	60			mg/kg	DIN EN ISO 11885 (2009) EN 71-3 (2019) // Acidic solution migration simulating gastric juices DIN EN ISO 17294-2 (2017)	
		Fibers/yarn	Limitation	260			mg/kg	DIN EN 16711-1 (2016) // Total content	As total metal content // valid for Polyester raw fiber
Arsenic, its salts and compounds		Textiles Metal parts Polymer parts Down/feather articles	Usage ban	0.2			mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	As extractable metal content
		Leather	Usage ban	0.2			mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	
Cadmium, its salts and compounds	Several	Textiles Polymer parts Down/feather articles	Usage ban	0.1			mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	As extractable metal content
		Leather	Usage ban	0.1			mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	
		Textiles Polymer parts Down/feather articles Metal parts	Usage ban	40			mg/kg	DIN EN 16711-1 (2016) // Total content	As total metal content
		Leather	Usage ban	40			mg/kg	EN ISO 17072-2 (2019) // Total content	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Metals (continued)									
Chromium VI, its salts and compounds	Several	Textiles Metal parts Polymer parts Down/feather articles	Usage ban	0.5			mg/kg	EN ISO 17075-1 (2017)	As extractable metal content
		Metal parts	Usage ban	0.5			mg/kg	EN 62321-7-1 (2016)	
		Leather	Usage ban	3.0			mg/kg	EN ISO 17075-1 (2017) EN ISO 17075-2 (2017) DIN EN ISO 4044 (2017)	
Chromium, its salts and compounds	Several	Metal parts Polymer parts Down/feather articles	Limitation	60			mg/kg	DIN EN ISO 11885 (2009) EN 71-3 (2019) // Acidic solution migration simulating gastric juices DIN EN ISO 17294-2 (2017)	If products are covered with a metal layer, including a chromium layer, coating must be constantly in good condition // as extractable metal content
		Textiles	Limitation	0.5			mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	As extractable metal content // for textiles dyed with chromium containing metal complex dyes A: 1.0 // B: 2.0 // C: 2.0 mg/kg
Cobalt, its salts and compounds	Several	Leather	Limitation	1.0			mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	As extractable metal content // for textiles and leather dyed with cobalt containing metal complex dyes A: 1.0 // B: 4.0 // C: 4.0 mg/kg
		Textiles	Limitation	1.0			mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	
		Metal parts Polymer parts Down/feather articles	Limitation	1.0	4.0	4.0	mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	As extractable metal content
Copper, its salts and compounds	Several	Textiles	Limitation	25	50	50	mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	As extractable metal content
		Leather	Limitation	25	50	50	mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Metals (continued)									
Lead, its salts and compounds	Several	Metal parts	Usage ban	90			mg/kg	DIN EN 16711-1 (2016) // Total content	As total metal content
		Leather	Usage ban	40			mg/kg	EN ISO 17072-2 (2019) // Total content	
		Textiles Polymer parts Down/feather articles	Usage ban	40			mg/kg	DIN EN 16711-1 (2016) // Total content	
		Leather	Usage ban	0.2	1.0	1.0	mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	As extractable metal content
		Textiles Polymer parts Down/feather articles	Usage ban	0.2	1.0	1.0	mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	
Mercury, its salts and compounds	Several	Metal parts	Usage ban	60			mg/kg	EN 71-3 (2019) // Acidic solution migration simulating gastric juices EN ISO 12846 (2012)	As extractable metal content
		Leather	Usage ban	0.02			mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	
		Textiles Polymer parts Down/feather articles	Usage ban	0.02			mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	
Nickel, its salts and compounds	Several	Textiles	Limitation	1.0			mg/kg	DIN EN 16711-2 (2016) // Acidic sweat solution	As extractable metal content // for textiles dyed with nickel containing metal complex dyes A: 1.0 // B: 4.0 // C: 4.0 mg/kg
		Leather	Limitation	1.0			mg/kg	EN ISO 17072-1 (2019) // Acidic sweat solution	As extractable metal content // for leather dyed with nickel containing metal complex dyes A: 1.0 // B: 4.0 // C: 4.0 mg/kg
		Metal parts Polymer parts Down/feather articles	Usage ban for A and B	0.5	0.5	-	µg/cm ² /week	EN 1811 (2011) + A1 (2015) // Release EN 12472 (2020)	As released metal content

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Monomers									
Acrylamide	79-06-1	All	Usage ban	1.0			mg/kg	CEN/TS 13130-10 (2005)	
Other Chemical Substances									
2-Phenyl-2-propanol	617-94-7	All	Limitation	10	50	50	mg/kg	GC-MS // Extraction with Methanol	
Acetophenone	98-86-2	All	Limitation	20			mg/kg	GC-MS // Extraction with Methanol	
Azodicarbonamide (ADCA)	123-77-3	All	Limitation	100	200	200	mg/kg	Solvent Extraction // GC-MS or LC-MS or LC-DAD	
Benzyl chloride	100-44-7	All	Usage ban	1.0			mg/kg	GC-MS // Extraction with Dichloromethane	
Bisphenol A	80-05-7	All	Usage ban	1.0	10	10	mg/kg	EN ISO 18857-2 (2012) // Extraction with Methanol EN ISO 18857-2 (2012) // Extraction with THF	
Cresol, all isomers	1319-77-3	All	Usage ban	See isomers				BVL B 82.02-8 (2001) // Extraction with KOH DIN EN ISO 17070 (2015) // Extraction with KOH	10 mg/kg for each isomer
m-Cresol	108-39-4	All	Usage ban	10			mg/kg		
o-Cresol	95-48-7	All	Usage ban	10			mg/kg		
p-Cresol	106-44-5	All	Usage ban	10			mg/kg		
Formamide	75-12-7	Textiles	Usage ban	50	50	100	mg/kg	EN 17131 (2019)	
		Metal parts Polymer parts Down/feather articles Leather	Usage ban	50	50	100	mg/kg	CEN ISO/TS 16189 (2013)	
Isoquinoline	119-65-3	All	Usage ban	50			mg/kg	LC-MS/MS // Extraction with Methanol LC-DAD // Extraction with THF LC-DAD // Extraction with Methanol LC-MS/MS // Extraction with THF	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Other Chemical Substances (continued)									
Phenol	108-95-2	All	Limitation	10	50	100	mg/kg	LC-MS // Extraction with Methanol GC-MS // Extraction with Methanol	
Quinoline	91-22-5	All	Usage ban	50			mg/kg	LC-MS/MS // Extraction with Methanol LC-DAD // Extraction with THF or Methanol LC-MS/MS // Extraction with THF	
Siloxanes	Several	All	Usage ban					GC // with reference to TEGEWA method	Usage ban for every allocated member/substances
Octamethyl cyclotetrasiloxane (D4)	556-67-2	All	Usage ban	30			mg/kg		
Decamethyl cyclopentasiloxane (D5)	541-02-6	All	Usage ban	50			mg/kg		
Dodecamethyl cyclohexasiloxane (D6)	540-97-6	All	Usage ban	50			mg/kg		
Ozone Depleting Substances									
Ozone depleting substances (CFCs) class I	Several	All	Usage ban	0.1 each			mg/kg	GC-MS // Headspace	Usage ban for direct use in manufacturing of articles See Regulation (EC) No 1005/2009 for a complete list of single substances
Ozone depleting substances (CFCs) class II	Several	All	Usage ban	0.1 each			mg/kg	GC-MS // Headspace	
Pesticides									
Pesticides	Several	All	Limitation	0.5			mg/kg	GC-MS // ASE with Acetone/Hexane LC-MS // ASE with Acetone/Hexane GC-MS // Soxhlet Extraction with Acetone/Hexane LC-MS // Soxhlet Extraction with Acetone/Hexane	Applies to total sum of all allocated members/substances Single substances listed in Annex

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Perfluoroalkyl sulfonic acids and derivatives – PFSA									
<i>Perfluorooctane sulfonic acid and its derivatives</i>	Several	Textiles Metal parts Polymer parts Down/feather articles	Usage ban	1.0			µg/m²	CEN/TS 15968 (2014)	Usage ban on long-chain compounds based on electrofluorination chemistry (C6 and higher).
		Leather	Usage ban	1.0			µg/m²	EN ISO 23702-1 (2018)	Single substances listed in Annex
Perfluoroalkyl carboxylic acids and derivatives – PFCA									
<i>Perfluorocarboxylic acids and its salts</i>	Several	Leather	Usage ban	0.1			mg/kg	EN ISO 23702-1 (2018)	For sum of all allocated Members/Substances
		Textiles Metal parts Polymer parts Down/feather articles	Usage ban	0.1			mg/kg	CEN/TS 15968 (2014)	
<i>Perfluorohexanoic acid and its salts</i>	Several	Leather	Usage ban	0.05 Monitoring			mg/kg	EN ISO 23702-1 (2018)	Single substances listed in Annex.
		Textiles Metal parts Polymer parts Down/feather articles	Usage ban	0.05 Monitoring			mg/kg	CEN/TS 15968 (2014)	
<i>Perfluorooctanoic acid and its salts</i>	Several	Textiles Metal parts Polymer parts Down/feather articles	Usage ban	25			µg/kg	CEN/TS 15968 (2010)	Single substances listed in Annex
		Leather	Usage ban	25			µg/kg	EN ISO 23702-1 (2018)	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Perfluoroalkyl carboxylic acids and derivatives – PFCA (continued)									
<i>Perfluorooctanoic acid related substances</i>	Several	Textiles Metal parts Polymer parts Down/feather articles	Usage ban	1000			µg/kg	CEN/TS 15968 (2014)	For the sum of PFOA-related substances. Single substances listed in Annex
		Leather	Usage ban	1000			µg/kg	EN ISO 23702-1 (2018)	
Plasticizers									
<i>Phthalic acid esters</i>	Several	Textiles	Usage ban	50 each			mg/kg	EN ISO 14389 (2014) CPSC-CH-C1001-09.4	Single substances listed in Annex
		Metal parts Polymer parts Down/feather articles Leather	Usage ban	50 each			mg/kg	CPSC-CH-C1001-09.4	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Polyaromatic hydrocarbons (PAHs)									
Polyaromatic hydrocarbons (PAHs)	Several	All	Usage ban	10			mg/kg	AfPS GS 2019	For sum of all allocated PAHs PAHs without substance specific limit are listed in Annex
Benzo(a)anthracene	56-55-3	All	Usage ban	0.5	1.0	1.0	mg/kg		
Benzo(a)pyrene	50-32-8	All	Usage ban	0.2			mg/kg		
Benzo(b)fluoranthene	205-99-2	All	Usage ban	0.5	1.0	1.0	mg/kg		
Benzo(e)pyrene	192-97-2	All	Usage ban	0.5	1.0	1.0	mg/kg		
Benzo(j)fluoranthene	205-82-3	All	Usage ban	0.5	1.0	1.0	mg/kg		
Benzo(k)fluoranthene	207-08-9	All	Usage ban	0.5	1.0	1.0	mg/kg		
Chrysene	218-01-9	All	Usage ban	0.5	1.0	1.0	mg/kg		
Dibenzo(a,h)anthrene	53-70-3	All	Usage ban	0.5	1.0	1.0	mg/kg		
Polymers									
Polyvinyl chloride	9002-86-2	All	Usage ban	See comment				FTIR Beilstein test // FTIR measurement only if result of Beilstein test was positive	Usage ban for usage range A and B - Not detected // for usage range C: for special applications. BLUESIGN has the right to make an individual decision

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Solvents									
1,2-Dichloroethane	107-06-2	All	Usage ban	1.0	mg/kg	GC-MS // Headspace			
Benzene	71-43-2	All	Usage ban	5.0	mg/kg	VDA 278 (2011)			
Dichloromethane	75-09-2	All	Usage ban	5.0	mg/kg	GC-MS // Headspace		Usage ban for direct use in manufacturing of articles	
N,N-Dimethylacetamide (DMAc)	127-19-5	Textile articles including fabrics, laminates and non-wovens, garments and other finished textile article	Usage ban	5.0	mg/kg	EN 17131 (2019)		Several exceptions are defined: Exception is valid for articles produced by solvent coating, lamination or fiber manufacturing - A/B/C 50 mg/kg.	
		Metal parts Polymer parts Down/feather articles	Usage ban	5.0	mg/kg	CEN ISO/TS 16189 (2013)		Exception is valid for elastane and PAN fibers as residual fiber solvent with monitoring status - A: 10 mg/kg B: 50 mg/kg C: 50 mg/kg.	
		Leather	Usage ban	5.0	mg/kg	EN ISO 19070 (2016)		Exception is valid for Aramid fibers - for special applications bluesign technologies has the right to make an individual decision.	
		Fibers/yarn	Usage ban	5.0	mg/kg	EN 17131 (2019)			

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Solvents (Continued)									
N,N-Dimethylformamide (DMF)	68-12-2	Textiles	Usage ban	5.0			mg/kg	EN 17131 (2019)	Several exceptions are defined: Exception is valid for articles produced by solvent coating, lamination or fiber manufacturing - A/B/C 50 mg/kg. Exception is valid for PAN fibers - for special applications BLUESIGN has the right to make an individual decision.
		Metal parts Polymer parts Down/feather articles	Usage ban	5.0			mg/kg	CEN ISO/TS 16189 (2013)	
		Leather	Usage ban	5.0			mg/kg	EN ISO 19070 (2016)	
N-Ethyl-2-pyrrolidone (NEP)	2687-91-4	Leather	Usage ban	10	10	100	mg/kg	EN ISO 19070 (2016)	
		Metal parts Polymer parts Down/feather articles	Usage ban	10	10	100	mg/kg	CEN ISO/TS 16189 (2013)	
		Textiles	Usage ban	10	10	100	mg/kg	EN 17131 (2019)	
N-Methylpyrrolidone (NMP)	872-50-4	Textiles	Usage ban	10	10	100	mg/kg	EN 17131 (2019)	Exception is valid for Aramid fibers: for special applications BLUESIGN has the right to make an individual decision
		Metal parts Polymer parts Down/feather articles	Usage ban	10	10	100	mg/kg	CEN ISO/TS 16189 (2013)	
		Leather	Usage ban	10	10	100	mg/kg	EN ISO 19070 (2016)	

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Solvents (continued)									
Tetrachloroethylene	127-18-4	All	Usage ban	1.0			mg/kg	GC-MS // Headspace	
Toluene	108-88-3	All	Limitation	10	50	50	mg/kg	GC-MS // Headspace	Usage ban not valid for solvent coating, laminating and painting/lacquering.
Trichloroethylene	79-01-6	All	Usage ban	5.0			mg/kg	GC-MS // Headspace	
Xylene, all isomers	1330-20-7	All	Usage ban	50	100	100	mg/kg	GC-MS // Headspace	Sum of all isomers. Usage ban not valid for solvent coating, laminating and painting/lacquering.
Tin-organic Compounds									
Tin-organic Compounds - as mono-, di- and tri-, tetraalkyltin organics	Several	All	Usage ban					CEN ISO/TS 16179 (2012)	Usage ban for all allocated Members/Substances
Ethyltin compounds	Several		Usage ban						
<i>Tetraethyltin compounds (TET)</i>	Several	All	Usage ban	1.0			mg/kg		
Hexyltin compounds	Several		Usage ban						
<i>Tricyclohexyltin compounds (TCyHT)</i>	Several	All	Usage ban	0.5			mg/kg		
Butyltin compounds	Several		Usage ban						
<i>Dibutyltin compounds (DBT)</i>	Several	All	Usage ban	1.0			mg/kg		
<i>Monobutyltin compounds (MBT)</i>	Several	All	Usage ban	1.0			mg/kg		
<i>Tetrabutyltin compounds (TeBT)</i>	Several	All	Usage ban	0.5			mg/kg		
<i>Tributyltin compounds (TBT)</i>	Several	All	Usage ban	0.5			mg/kg		
Methyltin compounds	Several		Usage ban						
<i>Dimethyltin compounds (DMT)</i>	Several	All	Usage ban	0.5			mg/kg		

Chemical Name	CAS Number	Sector of Use	Limit Type	A	B	C	Unit	Test Method// Sample Preparation	Comment
Tin-organic Compounds (continued)									
Monomethyltin compounds (MMT)	Several	All	Usage ban		2.0		mg/kg	CEN ISO/TS 16179 (2012)	Usage ban for all allocated Members/Substances
Trimethyltin compounds (TMT)	Several	All	Usage ban		0.5		mg/kg		
Octyltin compounds	Several		Usage ban						
Diocyltin compounds (DOT)	Several	All	Usage ban		1.0		mg/kg		
Monooctyltin compounds (MOT)	Several	All	Usage ban		2.0		mg/kg		
Tetraoctyltin compounds (TeOT)	Several	All	Usage ban		0.5		mg/kg		
Trioctyltin compounds (TOT)	Several	All	Usage ban		0.5		mg/kg		
Phenyltin compounds	Several		Usage ban						
Diphenyltin compounds (DPhT)	Several	All	Usage ban		2.0		mg/kg		
Monophenyltin compounds (MPhT)	Several	All	Usage ban		1.0		mg/kg		
Triphenyltin compounds (TPhT)	Several	All	Usage ban		0.5		mg/kg		
Propyltin compounds	Several		Usage ban						
Dipropyltin compounds (DPT)	Several	All	Usage ban		1.0		mg/kg		
Tripropyltin compounds (TPT)	Several	All	Usage ban		0.5		mg/kg		
UV stabilizers									
2-(2H-Benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol	36437-37-3	All	Usage ban		1000		mg/kg	DIN EN 62321-6 (2016) // Extraction with THF	
2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)phenol	25973-55-1	All	Usage ban		1000		mg/kg		
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)-phenol	3864-99-1	All	Usage ban		1000		mg/kg	DIN EN 62321-6 (2016) // Extraction with THF	
2-benzotriazol-2-yl-4,6-di-tert-butylphenol	3846-71-7	All	Usage ban		1000		mg/kg		

Appendix 1b: Single Substances

The tables below list single substances belonging to the following groups:

- Arylamines
- Biocides
- Chlorinated Benzenes and Toluenes
- Chlorinated Phenols
- Colorants
- Dioxins and Furans
- Fibers
- Flame Retardants
- Halogenated Diarylalkanes
- Isocyanates
- Pesticides
- PFSA Chemicals
- PFCA Chemicals
- Plasticizers
- Polyaromatic hydrocarbons (PAHs)

Limit values and test methods are provided in Appendix 1a.

Chemical Name	CAS Number	Chemical Name	CAS Number
Arylamines		<i>Xylidines and its salts - with the exception of those specified elsewhere</i>	Several
2,4-Diaminoanisole and its salts	Several		
2,4-Diaminoanisole	615-05-4	2,4-Xylidine and its salts	Several
2,4-Diaminoanisole sulphate	39156-41-7	2,4-Xylidine	95-68-1
2,4-Diaminotoluene and its salts	Several	2,6-Xylidine and its salts	Several
2,4-Diaminotoluene	95-80-7	2,6-Xylidine	87-62-7
2-Naphthylamine and its salts	Several	<i>Nitrotoluidines and its salts</i>	Several
2-Naphthylamine	91-59-8		
2-Naphthylammoniumacetate	553-00-4	2-Amino-4-nitrotoluene and its salts	Several
4,4'-Diaminodiphenylmethane and its salts	Several	2-Amino-4-nitrotoluene	99-55-8
4,4'-Diaminodiphenylmethane	101-77-9	<i>Anisidines and its salts</i>	Several
4,4'-Methylenebis-(2-chloraniline) and its salts	Several	Anisidine (o-, p-isomers)	29191-52-4
4,4'-Methylenebis-(2-chloraniline)	101-14-4	2-Anisidine and its salts	Several
4-Amino-3-fluorophenol and its salts	Several	2-Anisidine	90-04-0
4-Amino-3-fluorophenol	399-95-1	<i>Benzidines and its salts</i>	Several
4-Aminobiphenyl and its salts	Several		
4-Aminobiphenyl	92-67-1	3,3'-Dichlorobenzidine and its salts - with the exception of those specified elsewhere	Several
4-Chloroaniline and its salts	Several		
4-Chloroaniline	106-47-8	3,3'-Dichlorobenzidine	91-94-1
6-Amino-2-ethoxynaphthalene and its salts	Several	<i>o</i> -Dianisidines and its salts - with the exception of those specified elsewhere	Several
6-Amino-2-ethoxynaphthalene	293733-21-8		
<i>o</i> -Aminoazotoluene and its salts	Several	3,3'-Dimethoxybenzidine	119-90-4
<i>o</i> -Aminoazotoluene	97-56-3	3,3'-Dimethylbenzidine and its salts	Several
<i>p</i> -Aminoazobenzene and its salts	Several	3,3'-Dimethylbenzidine	119-93-7
<i>p</i> -Aminoazobenzene	60-09-3	<i>Benzidine and its salts</i>	Several
<i>Trimethylanilines and its salts</i>	Several	Benzidine	92-87-5
		Benzidine acetate	36341-27-2
2,4,5-Trimethylaniline and its salts	Several	Benzidine dihydrochloride	531-85-1
2,4,5-Trimethylaniline	137-17-7	Benzidine, sulfate	21136-70-9
2,4,5-Trimethylaniline hydrochloride	21436-97-5	Benzidine, sulfate (1:1)	531-86-2

Chemical Name	CAS Number	Chemical Name	CAS Number
Arylamines (continued)		<i>Tetrachlorobenzenes, all isomers</i>	Several
Toluidines and its salts	Several	1,2,3,4-Tetrachlorobenzene	634-66-2
		1,2,3,5-Tetrachlorobenzene	634-90-2
<i>4,4'-Methylenedi-o-toluidine and its salts</i>	Several	1,2,4,5-Tetrachlorobenzene	95-94-3
4,4'-Methylenedi-o-toluidine	838-88-0	<i>Trichlorobenzenes, all isomers</i>	Several
<i>m-Toluidine and its salts</i>	Several	1,2,3-Trichlorobenzene	87-61-6
m-Toluidine	108-44-1	1,2,4-Trichlorobenzene	120-82-1
<i>o-Toluidine and its salts</i>	Several	1,3,5-Trichlorobenzene	108-70-3
o-Toluidine	95-53-4	<i>Dichlorobenzenes, all isomers</i>	Several
<i>p-Cresidine and its salts</i>	Several	1,2-Dichlorobenzene	95-50-1
p-Cresidine	120-71-8	1,3-Dichlorobenzene	541-73-1
<i>p-Toluidine and its salts</i>	Several	1,4-Dichlorobenzene	106-46-7
p-Toluidine	106-49-0	Chlorinated Toluenes	Several
Dianilines and its salts	Several	Chlorotoluene, unspecific mixture	25168-05-2
<i>4,4'-Oxydianiline and its salts</i>	Several	Pentachlorotoluene	877-11-2
4,4'-Oxydianiline	101-80-4	<i>Trichlorotoluenes, all isomers</i>	Several
<i>4,4'-Thiodianiline and its salts</i>	Several	2,3,4-Trichlorotoluene	7359-72-0
4,4'-Thiodianiline	139-65-1	2,3,6-Trichlorotoluene	2077-46-5
Chlorotoluidines and its salts	Several	2,4,5-Trichlorotoluene	6639-30-1
<i>4-Chloro-2-toluidine and its salts</i>	Several	2,4,6-Trichlorotoluene	23749-65-7
4-Chloro-2-toluidine	95-69-2	3,4,5-Trichlorotoluene	21472-86-6
4-chloro-2-toluidine hydrochloride	3165-93-3	a,a,a-Trichlorotoluene	98-07-7
Biocides		<i>Dichlorotoluenes, all isomers</i>	Several
o-Phenylphenol	90-43-7	2,3-Dichlorotoluene	32768-54-0
Chlorinated Benzenes and Toluenes		2,4-Dichlorotoluene	95-73-8
Chlorinated Benzenes	Several	2,5-Dichlorotoluene	19398-61-9
Hexachlorobenzene	118-74-1	2,6-Dichlorotoluene	118-69-4
Hexachlorobenzene	118-74-1	3,4-Dichlorotoluene	95-75-0
Monochlorobenzene	108-90-7	3,5-Dichlorotoluene	25186-47-4
Pentachlorobenzene	608-93-5	<i>Monochlorotoluenes, all isomers</i>	Several

Chemical Name	CAS Number	Chemical Name	CAS Number
Chlorinated Benzenes and Toluenes (continued)		3,4-Dichlorophenol	95-77-2
2-Chlorotoluene	95-49-8	3,5-Dichlorophenol	591-35-5
3-Chlorotoluene	108-41-8	<i>Monochlorophenols, all isomers</i>	25167-80-0
4-Chlorotoluene	106-43-4	2-Chlorophenol	95-57-8
<i>Tetrachlorotoluenes, all isomers</i>	Several	3-Chlorophenol	108-43-0
2,3,4,5-Tetrachlorotoluene	1006-32-2	4-Chlorophenol	106-48-9
2,3,4,6-Tetrachlorotoluene	875-40-1	Colorants	
2,3,5,6-Tetrachlorotoluene	1006-31-1	Colorants banned for other reasons	
a,a,a,2-Tetrachlorotoluene	2136-89-2	Acid Orange 24	1320-07-6
a,a,a,4-Tetrachlorotoluene	5216-25-1	Acid Violet 49	1694-09-3
Chlorinated Phenols		Basic Blue 26 - with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	2580-56-5
<i>Tetrachlorophenol, its salts and compounds</i>	25167-83-3	Direct Black 91	6739-62-4
2,3,4,5-Tetrachlorophenol	4901-51-3	Direct Blue 218	28407-37-6
2,3,4,6-Tetrachlorophenol	58-90-2	Direct Blue 76	16143-79-6
2,3,5,6-Tetrachlorophenol	935-95-5	Direct Yellow 1	6472-91-9
<i>Trichlorophenol, all isomers</i>	25167-82-2	Disperse Orange 149	85136-74-9
2,3,4-Trichlorophenol	15950-66-0	Disperse Yellow 23	6250-23-3
2,3,5-Trichlorophenol	933-78-8	<i>Navy Blue: A mixture of: disodium (6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)(1-(5-chloro-2-oxidophenylazo)-2-naphtholato)chromate(1-); trisodium bis(6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)chromat</i>	Several
2,3,6-Trichlorophenol	933-75-5		
2,4,5-Trichlorophenol	95-95-4		
2,4,6-Trichlorophenol	88-06-2		
3,4,5-Trichlorophenol	609-19-8	Disodium (6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)(1-(5-chloro-2-oxidophenylazo)-2-naphtholato)chromate(1-)	118685-33-9
<i>Pentachlorophenol, its salts, esters and compounds</i>	Several		
Pentachlorophenol	87-86-5	Trisodium bis(6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)chromat	
Mono- and Dichlorophenols	Several		
<i>Dichlorophenols, all isomers</i>	25167-81-1	Basic Violet 1	8004-87-3
2,3-Dichlorophenol	576-24-9	Basic Violet 3 - with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	548-62-9
2,4-Dichlorophenol	120-83-2		
2,5-Dichlorophenol	583-78-8		
2,6-Dichlorophenol	87-65-0		

Chemical Name	CAS Number	Chemical Name	CAS Number
Colorants (continued)		Disperse Orange 37/59/76 [3]	51811-42-8
Basic Violet 3 [1]	548-62-9	Colorants with carcinogenic potential	Several
Basic Violet 3 [2]	603-48-5	Acid Red 26	3761-53-3
Basic Violet 3 [3]	14426-25-6	Basic Red 9	569-61-9
Solvent Blue 4	6786-83-0	Basic Violet 14	632-99-5
Colorants with allergenic potential	Several	Direct Black 38	1937-37-7
Disperse Blue 102	12222-97-8	Direct Blue 6	2602-46-2
Disperse Blue 106	12223-01-7	Direct Brown 95	16071-86-6
Disperse Blue 124	61951-51-7	Direct Red 28	573-58-0
Disperse Blue 26	3860-63-7	Disperse Blue 1	2475-45-8
Disperse Blue 3	2475-46-9	Disperse Orange 11	82-28-0
Disperse Blue 7	3179-90-6	Disperse Yellow 3	2832-40-8
Disperse Brown 1	23355-64-8	Pigment Red 104	12656-85-8
Disperse Orange 1	2581-69-3	Pigment Yellow 34	1344-37-2
Disperse Orange 3	730-40-5	Solvent Red 80	6358-53-8
Disperse Red 1	2872-52-8	Solvent Yellow 2	60-11-7
Disperse Red 11	2872-48-2	Solvent Violet 8 - with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)	561-41-1
Disperse Red 17	3179-89-3		
Disperse Yellow 1	119-15-3	Basic Green 4	Several
Disperse Yellow 39	12236-29-2	Leucomalachite green	129-73-7
Disperse Yellow 49	54824-37-2	Malachite green	10309-95-2
Disperse Yellow 9	6373-73-5	Malachite green chloride	569-64-2
Solvent Yellow 14	842-07-9	Malachite green oxalate	2437-29-8
Disperse Blue 35	Several	Dioxins and Furans	
Disperse Blue 35 [1]	12222-75-2	Dioxins and Furans - Group 3	Several
Disperse Blue 35 [2]	56524-77-7	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0
Disperse Blue 35 B	56524-76-6	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9
Disperse Orange 37/59/76	Several	1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4
Disperse Orange 37/59/76 [1]	12223-33-5	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9
Disperse Orange 37/59/76 [2]	13301-61-6	1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7

Chemical Name	CAS Number	Chemical Name	CAS Number
Dioxins and Furans (continued), Group 4 and 5		Amosite	12172-73-5
<i>Dioxins and Furans - Group 5</i>	Several	Anthophyllite	77536-67-5
1,2,3,4,7,8-Hexabromodibenzo-p-dioxin	110999-44-5	Chrysotile	12001-29-5 132207-32-0
1,2,3,6,7,8-Hexabromodibenzo-p-dioxin	110999-45-6		
1,2,3,7,8,9-Hexabromodibenzo-p-dioxin	110999-46-7	Crocidolite	12001-28-4
1,2,3,7,8-Pentabromodibenzofuran	107555-93-1	Tremolite	77536-68-6
<i>Dioxins and Furans - Group 4</i>	Several	Flame retardants	
1,2,3,7,8-Pentabromodibenzo-p-dioxin	109333-34-8	Brominated alkyl alcohols	Several
2,3,4,7,8-Pentabromodibenzofuran	131166-92-2	2,2-Bis(bromomethyl)-1,3-propanediol	3296-90-0
2,3,7,8-Tetrabromodibenzofuran	67733-57-7	1-Propanol, 2,2-dimethyl-, tribromo derivatives	36483-57-5 1522-92-5
2,3,7,8-Tetrabromodibenzo-p-dioxin	50585-41-6	2,3-Dibromopropan-1-ol-(2,3-DBPA)	96-13-9
Dioxins and Furans - Group 1 and 2	Several	Bis(2,3-dibromopropyl) phosphate	5412-25-9
<i>Dioxins and Furans - Group 2</i>	Several	Tetrabromobisphenol A	79-94-7
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	Tetrabromobisphenol A bis(2,3-dibromopropylether)	21850-44-2
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6	Tri(aziridin-1-yl) phosphine oxide	545-55-1
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	Trimethyl phosphate	512-56-1
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7	Tri-o-cresyl phosphate	78-30-8
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	Tris(2,3-dibromopropyl) phosphate	126-72-7
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3	Tris-(2-chloro-1-methylethyl) phosphate	13674-84-5
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	Tris(2-chloroethyl) phosphate	115-96-8
2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5	Tris(methylphenyl) phosphate	1330-78-5
<i>Dioxins and Furans - Group 1</i>	Several	Tris-[2-chloro-1-(chloromethyl)ethyl] phosphate	13674-87-8
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4	Trixylyl phosphate	25155-23-1
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	Hexabromocyclododecan, all isomers - group for all major diastereoisomers identified	
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9		Several
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	μ-Hexabromocyclododecane	134237-52-8
Fibers		1,2,5,6,9,10-Hexabromocyclododecane	3194-55-6
Asbestos	Several	Hexabromocyclododecane	25637-99-4
Actinolite	77536-66-4	α-Hexabromocyclododecane	134237-50-6

Chemical Name	CAS Number	Chemical Name	CAS Number
Flame retardants (continued)		Tetramethylxylene-di-isocyanate	2778-42-9
β-Hexabromocyclododecane	134237-51-7	Diphenylmethane-di-isocyanates	Several
Chlorinated Paraffins, all chain lengths	Several	Diphenylmethane-2,2-di-isocyanate	2536-05-2
<i>Paraffin wax, chlorinated</i>	63449-39-8	Diphenylmethane-2,4-di-isocyanate	5873-54-1
<i>Paraffin, C10-C13, chlorinated</i>	85535-84-8	Diphenylmethane-4,4-di-isocyanate	101-68-8
<i>Paraffin, C14-C17, chlorinated</i>	85535-85-9	Methylenediphenyl diisocyanate - mixed isomers	26447-40-5
<i>Paraffin, C18-C28, chlorinated</i>	85535-86-0	Toluene-di-isocyanates	Several
Polybrominated diphenyl ethers	Several	Toluene-2,4-di-isocyanate	584-84-9
Decabromodiphenyl ether	1163-19-5	Toluene-2,6-di-isocyanate	91-08-7
<i>Tetrabromodiphenyl ether</i>	40088-47-9	Pesticides	
<i>Pentabromodiphenyl ether</i>	32534-81-9	Aldrin	309-00-2
<i>Octabromodiphenyl ether</i>	32536-52-0	Azinphos ethyl	2642-71-9
<i>Nonabromodiphenyl ether</i>	63936-56-1	Azinphos methyl	86-50-0
<i>Hexabromodiphenyl ether</i>	36483-60-0	Bromophos-ethyl	4824-78-6
<i>Heptabromodiphenyl ether</i>	68928-80-3	Captafol	2425-06-1
<i>Monobromodiphenyl ether</i>	Several	Carbaryl	63-25-2
2-Bromodiphenyl ether	7025-06-1	Chlordane	57-74-9
3-Bromodiphenyl ether	6876-00-2	Chlordecone	143-50-0
4-Bromodiphenyl ether	101-55-3	Chlordimeform	6164-98-3
Polybrominated diphenyl ethanes	Several	Chlorfenvinphos	470-90-6
Decabromodiphenylethane	84852-53-9	Chlorobenzilate	510-15-6
Halogenated Diarylalkanes		Clothianidin	210880-92-5
Monomethyl-dibromo-diphenyl methane	99688-47-8	Coumaphos	56-72-4
Monomethyl-dichloro-diphenyl methane	81161-70-8	Cyfluthrin	68359-37-5
Monomethyl-tetrachloro-diphenyl methane	76253-60-6	Cyhalothrin, lambda	91465-08-6
Isocyanates		Cypermethrin	52315-07-8
1,3-bis(isocyanatomethyl)benzene	3634-83-1	Deltamethrin	52918-63-5
Hexamethylene-di-isocyanate	822-06-0	Diazinon	333-41-5
Isophorone-di-isocyanate	4098-71-9	Dichlorprop	120-36-5

Chemical Name	CAS Number	Chemical Name	CAS Number
Pesticides (continued)		Mirex	2385-85-5
Dicrotophos	141-66-2	Monocrotophos	6923-22-4
Dieldrine	60-57-1	o,p'-Dichlorodiphenyl-dichloroethane	53-19-0
Dimethoate	60-51-5	o,p'-Dichlorodiphenyl-dichloroethylene	3424-82-6
Dinotefuran	165252-70-0	o,p'-Dichlorodiphenyl-trichloroethane and its isomers - preparations containing DDT and its isomers	789-02-6
Endosulfan, alpha	959-98-8		
Endosulfan, beta	33213-65-9	p,p'-Dichlorodiphenyldichloroethane	72-54-8
Endrin	72-20-8	p,p'-Dichlorodiphenyl-dichloroethylene	72-55-9
Esfenvalerate	66230-04-4	p,p'-Dichlorodiphenyl-trichloroethane and its isomers - preparations containing DDT and its isomers	50-29-3
Ethyl parathion	56-38-2		
Fenvalerate	51630-58-1	Perthane	72-56-0
Heptachlor	76-44-8	Phosphamidon	13171-21-6
Heptachlor epoxide	1024-57-3	Profenophos	41198-08-7
Imidacloprid (ISO)	105827-78-9 138261-41-3	Propetamphos	31218-83-4
Heptachlor	76-44-8	Quinalphos	13593-03-8
Isodrin	465-73-6	Strobane	8001-50-1
Kelevan	4234-79-1	Telodrin	297-78-9
Lindane (ISO)	58-89-9	Thiamethoxam	153719-23-4
Malathion	121-75-5	Tiacloprid	111988-49-9
Malathion	121-75-5	Toxaphene	8001-35-2
Malathion	121-75-5	Tribufos (DEF)	78-48-8
Malathion	121-75-5	Trifluralin - containing < 0.5 ppm NPDA	1582-09-8
MCPA	94-74-6	Hexachlorocyclohexane, all isomers	608-73-1
MCPB	94-81-5	Acetamiprid, its salts, esters and compounds	Several
Mecoprop	93-65-2	Acetamiprid (ISO)	135410-20-7
Methamidophos	10265-92-6	Acetamiprid [2]	160430-64-8
Methoxychlor	72-43-5	Dinoseb, its salts, esters and acetate	Several
Methyl parathion	298-00-0	Dinoseb	88-85-7
Mevinophos	7786-34-7	2,4-Dichlorophenoxyacetic acid, salts, esters and compounds	Several

Chemical Name	CAS Number	Chemical Name	CAS Number
Pesticides (continued)		Perfluorocarboxylic acids and its salts	Several
2,4-Dichlorophenoxy acetic acid	94-75-7	Perfluorohexanoic acid and its salts	Several
Nitenpyram, its salts, esters and compounds	Several	Perfluorohexanoic acid (PFHxA)	307-24-4
Nitenpyram [1]	150824-47-8	Perfluorooctanoic acid and its salts	Several
Nitenpyram [2]	120738-89-8	Ammonium pentadecafluoro octanoate	3825-26-1
2,4,5-Trichlorophenoxyacetic acid, its salts, esters and compounds	Several	Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, sodium salt (1:1)	335-95-5
2,4,5-Trichlorophenoxy acetic acid	93-76-5		
Perfluoroalkyl sulfonic acids and derivatives - PFSA		Perfluorooctanoic acid (PFOA)	335-67-1
Perfluorooctane sulfonic acid and its derivatives	Several	Potassium perfluorooctanoate	2395-00-8
Perfluorooctane sulphononic acid and its salts	Several	Perfluorooctanoic acid related substances	Several
Ammonium perfluorooctane sulfonate	29081-56-9	Methyl perfluorooctanoate	376-27-2
Diethanolamine perfluorooctane sulfonate	70225-14-8	Ethyl perfluorooctanoate	3108-24-5
Lithium perfluorooctane sulfonate	29457-72-5	Perfluorooctylethyl alcohols	Several
Perfluorooctane sulfonate	45298-90-6	Perfluorooctylethanol	678-39-7
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Perfluorooctylethyl olefins	Several
Potassium heptadecafluoro-octane-1-sulphonate	2795-39-3	Perfluorooctylethene	21652-58-4
Perfluorooctane sulfon amidoethanols	Several	Perfluorooctylethyl halides	Several
1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-	4151-50-2	1H,1H,2H,2H-Perfluorodecylidide	2043-53-0
1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-	1691-99-2	Heptadecafluoro-1-iodooctane	507-63-1
Heptadecafluoro-N-methyloctane sulfonamideoethanol	24448-09-7	Pentadecafluorooctyl fluoride	335-66-0
Perfluorooctane sulfon polymers	Several	Perfluorooctylethyl acrylate or methacrylate	Several
Perfluorooctane sulfon halides	Several	Perfluorooctylethyl polymers	Several
1-Octanesulfonyl fluoride, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-	307-35-7	Plasticizers	
		Phthalic acid esters	Several
Perfluorooctane sulfon amides	Several	Bis-(2-methoxyethyl) phthalate	117-82-8
Heptadecafluoro-N-methyloctane sulfonamide	31506-32-8	Butylbenzyl phthalate	85-68-7
Perfluorooctane sulfonamide	754-91-6	Dibutyl phthalate	84-74-2
Perfluorooctane sulfon amidoethyl (meth)acrylates	Several	Di-cyclohexyl phthalate	84-61-7
Perfluoroalkyl carboxylic acids and derivatives - PFCA		Diethyl phthalate	84-66-2

Chemical Name	CAS Number	Chemical Name	CAS Number
Plasticizers (continued)		Anthracene	120-12-7
Diethylhexyl phthalate	117-81-7	Benzo(ghi)perylene	191-24-2
Di-iso-butyl phthalate	84-69-5	Benzo[rst]pentaphene	189-55-9
Di-iso-hexyl phthalate	71850-09-4	Dibenzo[b,def]chrysene	189-64-0
Di-iso-octyl phthalate	27554-26-3	Dibenzo[def,p]chrysene	191-30-0
Di-iso-pentyl phthalate	605-50-5	Cyclopenta[c,d]pyrene	27208-37-3
Dimethyl phthalate	131-11-3	Fluoranthene	206-44-0
Di-n-hexyl phthalate	84-75-3	Fluorene	86-73-7
Di-n-octyl phthalate	117-84-0	Indeno(1,2,3-cd) pyrene	193-39-5
Dinonyl phthalate	84-76-4	Methylpyrene, 1-	2381-21-7
Di-n-pentyl phthalate	131-18-0	Naphthalene	91-20-3
Di-n-propyl phthalate	131-16-8	Naphtho[1,2,3,4-def]chrysene	192-65-4
n-Pentyl-isopentyl phthalate	776297-69-9	Phenanthrene	85-01-8
<i>1,2-Benzenedicarboxylic acid, benzyl C7-9-branched and linear alkyl esters</i>	68515-40-2	Pyrene	129-00-0
<i>1,2-Benzenedicarboxylic acid, di-C6-8-branched alkylesters, C7- rich</i>	71888-89-6		
<i>1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkylesters</i>	68515-42-4		
<i>1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear</i>	68515-50-4		
<i>1,2-Benzenedicarboxylic acid, dipentylester, branched and linear</i>	84777-06-0		
Di-iso-nonyl phthalate - iso & n-Butene based	68515-48-0		
<i>1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters</i>	Several		
1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters	68515-51-5		
1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters	68648-93-1		
<i>Di-iso-decyl phthalate</i>	Several		
Di-iso-decyl phthalate [1]	26761-40-0		
Di-iso-decyl phthalate [2]	68515-49-1		
Polyaromatic hydrocarbons (PAHs)			
Acenaphthene	83-32-9		
Acenaphthylene	208-96-8		

Appendix 1c: Product Testing Matrix

	Natural Fibers	Synthetic Fibers	Natural Leather	Natural materials	Metal	Feather & Down	Polymers & Plastics	Coatings & Prints	Glue
Acetophenone & 2-Phenyl-2-Propanol							x ¹		
Acidic and alkaline substances (pH)	x	x	x						
Alkylphenol (AP) & Alkylphenol Ethoxylates (APEOs)	x	x	x	x		x	x	x	x
Azo-amines and Arylamine salts	x	x	x					x	
Bisphenols		o	o				x ²		
Chlorinated Paraffins			x				x ³	o	
Chlorophenols	o	o	o						
Chlorinated Benzenes and Toluenes		o							
Dimethylfumarate (DMFu)			o						
Dyes, Forbidden & Disperse		x						o	
Flame Retardants	x ⁴								
Formaldehyde	x	x	x				o ⁵	x	x
Heavy Metals, Chromium VI	x ⁶		x						
Heavy Metals, Extractable	x	x	x				x	x	
Heavy metals, Nickel Release (Ni)					x ⁷				
Heavy metals, total	o ⁸		o		x		x ⁹	x	o
N-Nitrosamine							o ⁵		
Isocyanates							o ¹⁰	o ¹⁰	
Organotin Compounds		o	o				x	x	x
Ortho-Phenylphenol (OPP)	o	o	o					o	
Per- and polyfluoroalkyl substances (PFAS)	x ¹¹								

¹ Only applicable to EVA foam

² Polycarbonate

³ PU, TPU, rubber and PVC

⁴ Contains fire retardant finish

⁵ Only applicable to rubber material

⁶ Wool only

⁷ Direct and prolonged contact with the skin

⁸ Plant based fibers only

⁹ Core testing for foams only

¹⁰ Only applicable to Polyurethane material

¹¹ DWR finishes

	Natural Fibers	Synthetic Fibers	Natural Leather	Natural materials	Metal	Feather & Down	Polymers & Plastics	Coatings & Prints	Glue
Phthalates							x	x	x
Polycyclic Aromatic Hydrocarbons (PAHs)							x ¹²	x	x
Quinoline		o							
Solvents / Residuals (Formamide)							o ¹³		
Solvents / Residuals (e.g. DMFa, DMAc, NMP)							x ¹⁴	x ¹⁴	x ¹⁴
UV Stabilizers / Inhibitors							o		
Vinyl Chloride Monomer							x ¹⁵	x ¹⁵	

x Core Testing o Additional testing

¹² Rubber o black polymeric materials

¹³ Core for Formamide in EVA only

¹⁴ Core for DMFa in PU only

¹⁵ Only applicable to PVC

Appendix 2a: Packaging Restricted Substances List (RSL)

- An interactive version of the AFIRM packaging RSL v05 which includes information sheets on different materials groups can be found at the below link:
https://afirm-group.com/wp-content/uploads/2022/07/2021_AFIRM_Packaging_RSL_2022_0722.pdf
- Versions in Chinese, Indonesian, Japanese, Spanish and Vietnamese are also available on the AFIRM website

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Alkylphenols (APs) and Alkylphenol Ethoxylates (APEOs), including all isomers					
Various	Nonylphenol (NP), mixed isomers	Total: 100 ppm	<p>APEOS are used as surfactants in the production of plastics, elastomers, paper, and textiles. These chemicals can be found in many processes involving foaming, emulsification, solubilization, or dispersion. APEOs can be used in paper pulping, lubrication oils, and plastic polymer stabilization.</p> <p>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.</p> <p>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.</p>	Textiles and Leather: EN ISO 21084:2019 with determination of LC/MS or LC/MS/MS	Sum of NP & OP: 10 ppm
Various	Octylphenol (OP), mixed isomers			Polymers and all other materials: 1 g sample/20 mL THF, sonication for 60 minutes at 70 degrees C, analysis according to EN ISO 21084:2019	
Various	Nonylphenol ethoxylates (NPEOs)	Total: 100 ppm		All materials except Leather: EN ISO 18254-1:2016 with determination of APEO using LC/MS or LC/MS/MS	Sum of NPEO & OPEO: 20 ppm
Various	Octylphenol ethoxylates (OPEOs)			Leather: Sample prep and analysis using EN ISO 18218-1:2015 with quantification according to EN ISO 18254-1:2016	

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Azo-amines + and Arylamine Salts					
92-67-1	4-Aminobiphenyl	20 ppm each	<p>Azo dyes and pigments are colorants that incorporate one or several azo groups (-N=N-) bound with aromatic compounds.</p> <p>Thousands of azo dyes exist, but only those which degrade to form the listed cleavable amines are restricted.</p> <p>AFIRM recommends testing synthetic textiles & blends, polycarbonate plastics, and natural leather to assess concentrations of bisphenols in preparation for restriction in the future Azo dyes that release these amines are regulated and should no longer be used for dyeing textiles.</p>	<p>All materials except Leather: EN ISO 14362-1:2017 Leather: EN ISO 17234-1:2015</p> <p>p-Aminoazobenzene: All materials except Leather: EN ISO 14362-3:2017 Leather: EN ISO 17234-2:2011</p>	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				

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Butylated Hydroxytoluene (BHT)					
128-37-0	Dibutylhydroxytoluene (BHT)	25 ppm	Used as an additive in plastics as an antioxidant to prevent aging. Can cause phenolic yellowing of textiles	ASTM D4275	5 ppm
Bisphenols					
80-05-7	Bisphenol-A (BPA)	1 ppm	Used in the production of epoxy resins, polycarbonate plastics, flame retardants, PVC, polyamide dye-fixing agents, and sulfone- and phenolbased leather tanning agents.	All materials: Extraction: 1 g sample/20 ml THF, sonication for 60 minutes at 60 degrees C, analysis with LC/MS	Individual samples: 0.1 ppm Composite samples: 1 ppm
80-09-1	Bisphenol-S (BPF)	AFIRM recommends testing synthetic textiles & blends, polycarbonate plastics, and natural leather to assess concentrations of bisphenols in preparation for restriction in the future	May be found in recycled polymeric and paper materials due to polycarbonate plastic and thermal receipt paper made with bisphenols entering waste streams.		1 ppm each
620-92-8	Bisphenol-F (BPS)		BPA is formally prohibited from use in receipt paper.		
1478-61-1	Bisphenol-AF (BPAF)		AFIRM is currently investigating all relevant sources of bisphenols and their concentrations in products and packaging with legislation imposing strict limits pending in multiple jurisdictions. Restriction of these substances is likely in a future update.		
Dimethylfumarate					
624-49-7	Dimethylfumarate (DMFu)	0.1 ppm	DMFu is an anti-mold agent used in sachets in packaging to prevent the buildup of mold, especially during shipping.	All materials: ISO 16186:2021	0.05 ppm

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Butylated Hydroxytoluene (BHT)					
Formaldehyde					
50-00-0	Formaldehyde	150 ppm	<p>Formaldehyde can be found in polymeric resins, binders, and fixing agents for dyes and pigments, including those with fluorescent effects. It is also used as a catalyst in certain printing, adhesives, and heat transfers. Formaldehyde can be used in antimicrobial applications for odor control.</p> <p>Formaldehyde found in packaging can off-gas directly onto product.</p> <p>Composite wood materials (e.g., particle board and plywood) must comply with California and U.S. formaldehyde emission requirements (40 CFR 770). Though formaldehyde legislation does not specifically apply to packaging, suppliers are advised to refer to brand-specific requirements for these materials.</p>	<p>Wood: EN 717-3 Paper: DIN EN 645:1994 and EN 1541:2001</p> <p>Textiles, Finishings, Dyes, Inks & Coatings: JIS L 1041-2011 A (Japan Law 112) or EN ISO 14184-1:2011 Leather: EN ISO 17226-2:2019 with EN ISO 17226-1:2021 confirmation method in case of interferences. Alternatively, EN ISO 17226-1:2021 can be used on its own.</p>	16 ppm

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Heavy Metals (Total Content)					
7440-43-9	Cadmium (Cd)	100 ppm (Sum)	Cadmium compounds are used as pigments (especially in red, orange, yellow and green) and in paints. It can also be used as a stabilizer for PVC.	All materials: Total heavy metals (Cd, Cr, Pb & Hg): EN ISO 16711-1	5 ppm
7439-92-1	Lead (Pb)		May be associated with plastics, paints, inks, pigments, and surface coatings.		If total of four heavy metals exceeds 100 ppm and Cr is detected, test for CrVI.
7439-97-6	Mercury (Hg)		Mercury compounds can be present in pesticides and as contaminants in caustic soda (NaOH). They may also be used in paints.		
18540-29-9	Chromium VI		Though typically associated with leather tanning, Chromium VI also may be used in pigments, chrome plating of metals, and wood preservatives.	Metal: IEC 62321-7-1:2015 All other materials: IEC 62321-7- 2:2015.	3 ppm
Organotin Compounds					
Various	Dibutyltin (DBT)	1 ppm each	Class of chemicals combining tin and organics such as butyl and phenyl groups. Organotins are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (e.g., antibacterials), catalysts in plastic and glue production, and heat stabilizers in plastics/rubber. In textiles and apparel packaging, organotins are associated with plastics/ rubber, inks, paints, metallic glitter, polyurethane products and heat transfer material.	All materials: EN ISO 22744-1:2020	0.1 ppm each
Various	Diocetyltn (DOT)				
Various	Monobutyltin (MBT)				
Various	Tricyclohexyltin (TCyHT)				
Various	Trimethyltin (TMT)				
Various	Triocetyltn (TOT)				
Various	Tripropyltin (TPT)	0.5 ppm each			
Various	Tributyltin (TBT)				
Various	Triphenyltin (TPhT)				

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Per- and polyfluoroalkyl substances (PFAS)					
Various	Perfluorooctane Sulfonate (PFOS) and related substances	1 µg/m2 total	PFOA and PFOS may be present as unintended byproducts in long-chain and short-chain commercial water-, oil-, and stain-repellent agents. PFOA may also be used in polymers like polytetrafluoroethylene (PTFE). Refer to Appendix A for the full list of substances and CAS Numbers included in this restriction. In addition to this list, all PFOA-related substances are prohibited from use.	All Materials: EN ISO 23702-1	1 µg/m2 total
Various	Perfluorooctanoic Acid (PFOA) and its salts	25 ppb total			25 ppb total
Various	PFOA-related substances	1000 ppb total			1000 ppb total

CAS Number	Chemical Name	Limits	Potential Uses	Sample Preparation	Reporting Limit
Phthalates					
28553-12-0	Di-Iso-nonylphthalate (DINP)	500 ppm each Total: 1000 ppm	<p>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 moulding of plastic by decreasing its melting temperature. Phthalates can be found in:</p> <ul style="list-style-type: none"> • Flexible plastic packaging • Components (e.g., PVC) • Plastisol print pastes • Adhesives • Plastic sleeves • Polymeric coatings <p>The REACH substances of very high concern (SVHC) candidate list is updated frequently. Suppliers should assume that the AFIRM Packaging RSL includes all Phthalates on the SVHC list—whether itemized here or not.</p>	All materials: CPSC-CH-C1001-09.4, analysis by 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	Diisohexyl phthalate (DIHP)				
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 $\geq 0.3\%$ 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)				

Appendix 2b: Per- and polyfluoroalkyl substances (PFAS)

Chemical Name	CAS Number	Chemical Name	CAS Number
PFOS and Related Substances		PFOA and Its Salts	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	Perfluorooctanoic acid (PFOA)	335-67-1
Perfluorooctanesulfonic acid, potassium salt (PFOS-K)	2795-39-3	Sodium perfluorooctanoate (PFOA-Na)	335-95-5
Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	29457-72-5	Potassium perfluorooctanoate (PFOA-K)	2395-00-8
Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄)	29081-56-9	Silver perfluorooctanoate (PFOA-Ag)	335-93-3
Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH) ₂)	70225-14-8	Perfluorooctanoyl fluoride (PFOA-F)	335-66-0
Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄)	56773-42-3	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)	4151-50-2	PFOA-related Substances	
N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)	31506-32-8	1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	39108-34-4
2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)	1691-99-2	Methyl perfluorooctanoate (Me-PFOA)	376-27-2
2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)	24448-09-7	Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5
Perfluoro-1-octanesulfonyl fluoride (POSF)	307-35-7	2-Perfluorooctylethanol (8:2 FTOH)	678-39-7
Perfluorooctane sulfonamide (PFOSA)	754-91-6	1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9
		1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9

Appendix 2c: Packaging Testing Matrix

	Wood & Paper	Plastic & Wraps	Finishing, Dyes, inks & Coatings	Metal	Textiles	Other Items
Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs)	x	x	x		x	x ¹⁶
Azo-amines and Arylamine Salts	x				x	
Bisphenols	x ¹⁷	x ¹⁸				
Butylhydroxytoluene (BHT)		x ¹⁹				
Dimethylfumarate (DMFu)						x ²⁰
Formaldehyde	x		x		x	
Heavy Metals, Chromium VI [#]	x	o	x	o		
Heavy Metals, Cadmium Total [#]	x ²¹	x ²¹	x	x		
Heavy Metals, Lead Total [#]	x ²¹	x ²¹	x	x		
Heavy Metals, Mercury Total [#]		o	x			
Organotin Compounds		o	o		o	
Per- and polyfluoroalkyl substances (PFAS)	x ²²		x ²²		x ²²	
Phthalates		x	x ²³		x ²⁴	

x Core Testing o Additional testing

[#] note that Chromium VI, Cadmium, Lead, and Mercury are restricted to a sum total of 100 ppm in several jurisdictions. Cadmium, Lead, and Mercury are analyzed using the same method even if the risk of finding them varies across different materials.

¹⁶ Foams only

¹⁷ Thermal receipt and recycled paper

¹⁸ Tapes, polycarbonate, and recycled plastic cases

¹⁹ Poly bags

²⁰ Silica gel packets and foam packaging

²¹ Materials with high recycled content

²² Waterproof finishes

²³ Plastisol prints

²⁴ PVC

Appendix 2d: Packaging material categories

Examples of materials in each category

Paper & Wood	<ul style="list-style-type: none"> • Shoe boxes • Corrugated shipping boxes/cartons 	<ul style="list-style-type: none"> • Tissue paper • Hang tags 	<ul style="list-style-type: none"> • Thermal receipt paper
Plastic & Wrap Finishing	<ul style="list-style-type: none"> • Poly bags • Stickers 	<ul style="list-style-type: none"> • Boxes or cases • Tape 	<ul style="list-style-type: none"> • Stuffing materials, expanded foam materials
Dyes, Inks & Coatings	<ul style="list-style-type: none"> • Cellulose laminates • Coatings containing heavy metals • Hot stamp printing 	<ul style="list-style-type: none"> • Foil stamping • Soft-touch coatings • Lamination, matte or gloss 	<ul style="list-style-type: none"> • UV coatings • Varnish coatings • Water-based (aqueous) lacquer coatings
Metal	<ul style="list-style-type: none"> • Magnets • Eyelets 	<ul style="list-style-type: none"> • Bead chain • Pins 	<ul style="list-style-type: none"> • Zippers
Textiles	<ul style="list-style-type: none"> • Synthetic textiles 	<ul style="list-style-type: none"> • Plant-based textiles 	<ul style="list-style-type: none"> • Natural fibers (e.g. silk. Wool)
Other Items	<ul style="list-style-type: none"> • Silica gel/desiccant sachets 	<ul style="list-style-type: none"> • Antimicrobial stickers 	

Appendix 3: Definitions

Accessory

A component of a consumer product which is not classified as textile fabric (e.g. button, label, zipper, etc.)

Article

An object which during production is given a special shape, surface or design, which determines its function to a greater degree than does its chemical composition (fibers, textile fabrics, buttons, zippers, etc.).

BSSL

bluesign® system substances list (BSSL) consumer safety limits. A list that specifies consumer safety limits for chemical substances in articles. It also defines usage bans for chemical substances prohibited from the manufacturing of articles.

CAS

CAS registry numbers are unique numerical identifiers for chemical elements, compounds, polymers, biological sequences, mixtures and alloys. Chemical Abstracts Service (CAS), a division of the American Chemical Society, assigns these identifiers to every chemical that has been described in the literature. The intention is to make database searches more convenient, as chemicals often have many names. Almost all molecule databases today allow searching by CAS number.

Chemical substance

A chemical element and its compounds with constant composition and properties. It is defined by the CAS number.

Component

A part of an article that can be distinguished according to the material composition, the functionality and/or the color and is easily, mechanically separated from the other components.

Limit value

Limit values are defined for single substances or substance groups. The limit value is the maximum amount of a chemical substance or substance group permitted in articles for the usage ranges A, B and C.

Member

This term describes a member of a group of restricted substances. It can be a chemical substance or a subgroup of substances. See also Substance groups.

Mixture

A chemical product composed of two or more substances. It can be, for example, a colorant or an auxiliary.

Monitoring

For some chemical substances toxicological and/or ecological properties are not yet well defined. Therefore, the risk assessment is not complete. For some substances sufficient information on possible/typical contamination of articles and chemical products is not available now. Those substances are under observation. Exact restrictions will be defined as soon as more information exists. In cases where monitoring status is accompanied by a limit value, the limit value should be the goal.

Reporting limits

Reporting limits are values at or above the practical quantification limit (PQL) for the test method. The PQL represents the lowest level at which accurate, precise, and robust data can be reported. These limits are values above which labs should report detected substances for purposes of data capture and harmonization.

Sector of Use

Bluesign® ASSESSMENT for chemical products defines sector of use categories. BLUESIGN uses an approach similar to REACH for the risk-based evaluation of chemical substances and transfers this to the evaluation of chemical products. This allows a product, process and industry specific assessment of risks to human and the environment, that can be adapted to all kind of industries. Some sectors of use are combined to groups as shown in the following table:

Sector of Use Group	Sector of Use
Textiles	Fibers/yarns
	Textile articles including fabrics, laminates and non-wovens
	Garments and other finished textile articles
Down/feather	Down and feather articles
Leather	Leather articles
Polymer parts	Plastic articles
	Rubber articles
Metal parts	Basic metals, including alloys
	Fabricated metal articles

Several

When a substance group is not defined by a single CAS number, the field CAS Number contains the entry "Several". In case of a restriction of the whole substance group this is reflected by a limit entry for the group or a corresponding comment. For substance groups, especially for large groups, some or all members are listed in the annex. When group members are listed in the annex, this is indicated in the comment for the group.

Substance groups

For better readability and to show the hierarchy of substance groups the RSL lists:

- Main substance group **(bold, normal letter)**
- Substance group ***(bold, italic letter)***
- Substance subgroup *(italic letter)*
- Single substances (normal letter)

Usage ban

For several chemical substances or substance groups a usage ban is defined. For these substances or substance groups intentional use in manufacturing of articles is prohibited. That means that chemical products (e.g. colorants or textile auxiliaries) used for manufacturing of articles must not intentionally contain these substances or substance groups. The aim of a usage ban is to avoid release of harmful substances to the environment and to avoid occurrence in the manufactured article by applying the precautionary principle.

Usage range

Usage ranges classify consumer goods according to their consumer safety relevance. Three usage ranges (A, B, C) are defined with A being the most stringent category concerning limit values/bans:

- Usage Range A: Next to skin use and baby articles (0 to 3 years)
- Usage Range B: Occasional skin contact
- Usage Range C: No skin contact