

**Chemical Guideline and Restricted
Substances List**

Valid from: 2018-08-08

Created by: var. au. /AB

Approved by: Aiko Bode/Swerea

FENIX OUTDOOR

**Chemical Guideline and Restricted Substances
List (RSL)**



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Note: All business partners, suppliers and traders need to sign Section 11.

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1. General Considerations

This guideline is developed to provide producers and suppliers to any Fenix Outdoor International AG entity with information on how to deliver on the individual buying terms regarding the chemical content of specific substances or substance groups in textiles, clothing, hardware, leather goods, metal goods, food packaging and accessories. These procedures and requirements shall ensure that all legal demands are fulfilled, the environment is protected in both the supplying and importing countries and that the import of goods and free trade, in particular with developing countries and the European Union (EU) is promoted.

The distinguishing properties of the chemicals and the processes in which they are used are described.

The stipulated test equipment is commonly occurring, and the detection limits are generally accepted.

We acknowledge that due to general contaminations even unwanted or prohibited substances may be detected in products and components. However, we do not accept this as an excuse for improper handling of chemicals or non-compliant behavior.

Recommended substitutes are in general less harmful or generally better while providing the desired effect or similar functional property.

This Guideline builds on the Chemical Guidance of the Swedish Chemicals Group SWEREA IVF and the Textiles Importers' Association of Sweden in its most recent version. The *Information on authorization and restrictions of substances used in textile and leather processes and products* is available in various languages (**Bengali, Chinese, Turkish; Vietnamese in preparation**) and can be provided upon request.

2. Purpose

There are numerous local, national and international laws and regulations that dictate how retailers, brands and suppliers should manage chemicals used in processing and in final products; and these laws are constantly changing.

Every retailer, brand and supplier needs a reliable system for tracking these regulations and for determining how their chemical management programs need to respond to these requirements.

The purpose of the group-wide Chemical Guideline and Restricted Substances List is to ensure compliance of all apparel, hardware and footwear products produced by or in the name of any Fenix Outdoor International AG entity with statutory (legal) requirements and self-imposed regulations and restrictions. This Guideline is governed by the precautionary principle and includes long-term views in light of legislative changes in various regions of the world. Our group-wide aim is to not use any hazardous chemicals that threaten human health or the environment. It is our utmost wish to reduce any negative impacts throughout the supply chain of our products. Hence, our restrictions go beyond legal compliance and we

encourage our business partners to be proactive and search for new, less harmful alternatives even before a legal demand is formulated.

3. Scope of Application

This corporate guideline applies to all Fenix Outdoor apparel, hardware and footwear companies and their suppliers including but not limited to materials suppliers, dye houses, chemical companies, mills, tanneries, cleaning, washing and pressing facilities and all those suppliers selling or treating materials and components that are used in or for our products. As applicable, the guide or any specified annex also applies to our technical brands and their suppliers as specified before.

Our aim is to present this Guideline as a comprehensive chemicals guidance document of substances for authorization and a Restricted Substances List (RSL) including restrictions for substances which are used in production processes and/or in products and related categories.

However, additional specific requirements maybe imposed by individual entities of Fenix Outdoor Group and those are valid beyond this Guideline.

4. Additional Valid Instructions and Reference Documents

- Fenix Way
- REACH I regulation (EU Regulation 1907/2006) and related amendments
- EU POP regulation (EU Regulation 850/2004 and 519/2012) and related amendments
- Biocide Product regulation (EU Regulation 528/2012) and related amendments
- EU directive concerning packaging materials (94/62/EC) and related amendments
- EU regulations concerning materials intended for contact with foodstuff (EU Regulation 1935/2004) and related amendments
- California Proposition 65 (as applicable)
- Fenix Supplier Code of Conduct
- Anti-Corruption Guideline
- Relevant Group Policies

5. Definition of Terms

The following definitions of abbreviations and terms shall apply.

CAS No.	Chemical abstract services registration number. CAS Number is given for a specific and defined substance.
CCO	is an abbreviation for Chief Compliance Officer. The CCO controls the compliance activities on Group level and ensures they are implemented at Fenix.
Compliance	stands for consistency of corporate conduct with statutory and internal corporate regulations and behavior, embodied by the conduct of senior management and employees of Fenix.
Detection limit:	Lowest concentration the test equipment is able to detect. This can vary between different test laboratories and the age and quality of their equipment. Please note that the <u>detection limit is not always relevant as required/allowed -> limit values</u> for certain chemicals can be notably higher than those. In some instances detection limits are even below

background concentrations (e.g., air or water pollution levels) which will virtually always in the detection of a substance, even when not deliberately used.

- Limit value:** Limit value is the allowed maximum concentration of a chemical in a finished product. (Fenix defined or legally fixed). Where stated: “*not to be used*”, a use of the chemical in any production step is not permitted. Note that the limit value is measured in products. Weight percent shall be calculated from the weight of the stand-alone component (e.g., a zipper, a lining etc.) if not defined otherwise. This demand is a consequence from the REACH Court ruling in 2015.
- Packaging material:** Defined according to Directive (EC) No 94/62/EC of 20 December 1994 on packaging and packaging waste. The directive regulates substances in packaging material; meaning all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer.
- pH:** In chemistry, pH (/pi:ˈeɪtʃ/) is a numeric scale used to specify the acidity or basicity (alkalinity) of an aqueous solution. It is roughly the negative of the logarithm to base 10 of the molar concentration, measured in units of moles per liter, of hydrogen ions. Solutions with a pH less than 7 are acidic and solutions with a pH greater than 7 are basic. Pure water is neutral (pH 7), being neither an acid nor a base.
- Properties:** Describes the Human toxicological and Eco toxicological properties of a substance.
- Test method:** Describes the prescribed (standardized) test method to clarify and evidence that the limit value is not exceeded. It also prescribes test equipment if no standardized test method exists. Abbreviations of recommended test equipment are explained below (test equipment abbreviations).

GENERAL NOTE: In the line “*Comments*” we present additional information on known alternatives for and recommendations on how to avoid unwanted chemicals.

Test equipment abbreviations

ANALYSES OF ORGANIC COMPOUNDS

- **Gas chromatography : GC**

Detectors used together with GC:

- o MS: Mass selective detector: GC-MS
- o DAD: Diode array detector: GC-DAD
- o ECD: Electron capture detector: GC-ECD

- **Liquid chromatography: LC**

Note: Sometimes the abbreviation HPLC is used. It stands for High Performance Liquid Chromatography.

Detectors used together with LC:

- o MS: Mass selective detector: LC.MS

- o DAD: Diode array detector: LC-DAD
- o ECD: Electron capture detector: LC-ECD
- o UV/VIS: Ultraviolet/visible spectral-photometric detector: LC-UV/VIS

ANALYSES OF METALS

- **Inductively Coupled Plasma Spectrometry: ICP**
Detectors together with ICP:
 - o OES: Optical emission spectrometer: ICP-OES
 - o MS: Mass selective detector: ICP-MS
- **Atomic absorption spectrophotometer: AAS**

SCREENING ANALYSES OF ELEMENTS

- **X-ray fluorescence: XRF**

Units used in the Guideline (and their relationship)

1000 mg/kg	equals	1000	ppm (parts per million)
1000 mg/kg	equals	1000000	µg/kg (micrograms per kilogram)
1000 mg/kg	equals	1	g/kg (gram per kilogram)
1000 mg/kg	equals	0,1% (by weight)	
1000 mg/kg	equals	x	µg/m ² (micrograms per square meter while x depends on the thickness of the material (kg/m ²))
1000 mg/kg	equals	x	µg/cm ² /week (cm = centimeters) x is the amount released of a substance from a surface, and is partially dependent on the concentration of the substance in a given substrate

pH

Limit value textiles: 4.0 – 7.5.

Limit value leather: 3.5 – 7.0.

Properties: A pH higher than 10 or lower than 3 can cause skin irritation.

Comment: The pH value in **textiles** can easily be corrected by washing.

Test method textiles: ISO 3071.

Test equipment: pH meter. Accuracy: 0.2 pH units

Test method leather: SS-EN ISO 4045.

Test equipment: pH meter. Accuracy: 0.2 pH units

6. Duties and Responsibilities

Fenix Outdoor assumes the responsibility regarding safety and legal compliance of all its products vis-à-vis legislators and our customers. However, we can only assume responsibility if all our direct and indirect suppliers have been working as partners and been in compliance with legal and self-

imposed rules and observed our defined requirements. Hence, violations and ignorance of this Guideline can result in damage claims and compensation in loss of sales. Subsequently: all suppliers in our supply chain – direct or indirect - shall follow our chemical specifications and inform us immediately, latest within 24 hours, should – for what reason ever – a violation of this guideline become known.

We expect all our partners to test frequently a number of materials and raw input materials for the risk chemicals listed below, setting clear priorities based on exposure risks. The tests shall only be conducted in accredited laboratories – either as prescribed below or if the laboratory can show an ISO/IEC 17025 accreditation.

Test results have to be reported to the respective Fenix Outdoor entity irrespective of the outcome without delay. In case, a problem arises, the Fenix entity and the responsible supplier will discuss the best way forward to achieve compliance.

7. Content – The Chemicals List

Not all chemicals find application in all materials, products or purposes. Hence we have identified the most common use-options. However, should a chemical, restricted or banned according to this guideline also be used in other applications, please immediately inform your Fenix Outdoor contact for instructions. In case no substitute is available, a possible temporary approval of the questionable, banned or hazardous chemical can only be granted in writing by a Fenix Outdoor responsible employee. Failing to do so will lead to damage claims and possible other financial compensation demands. We expect our suppliers to have proper safety data sheets for all chemicals used in the process. They should be presentable upon request and need to be followed at any time.

7.1 Process and Packaging-related Chemicals

7.1.1 Alkylphenol ethoxylates (APEO) and derivatives

The most common APEOs are Nonylphenol ethoxylates (NPEO) and Octylphenol ethoxylates (OPEO).

Material categories concerned: Textile, Leather

Limit value:	<u>Not to be used in processes</u> . Max allowed occurrence in product: 25 mg /kg. Production should be free from contaminations.
Properties:	Irritating to skin. The metabolites affect the respiratory system, have endocrine disruptive effect (hormones) and are dangerous for the environment. Nonylphenol ethoxylates are rapidly degraded to 4-nonylphenol, which is even more dangerous for the environment. A similar environmental danger is the degradation of octylphenol ethoxylate into 4-octylphenol.
Use:	Dispersing and emulsifying agents in textile chemicals as well as impregnation agents in printing pastes. Occurs in leather lubricants. Manufacturing of coatings.
Comments:	The main alternatives for NPEs also include alcohol ethoxylates, both linear and branched, and glucose-based carbohydrate derivatives such as alkylpolyglucoside, glucamides, and glucamine oxides
Legal background:	Legal limit: 0.1% by weight for nonylphenol ethoxylate as a substance or constituent of preparations (closed systems exempted).

NPEOs shall not be placed on the market after 3 February 2021 in textile articles, in concentrations equal to or greater than 0,01 % by weight of that textile article or of each part of the textile article (= 100 mg/kg). Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). **Norway restricts manufacture, import, export, sale and use** of octylphenol and octylphenol ethoxylates, and mixtures containing these substances, FOR 2004-06-01-922.

4-Nonylphenol, branched and linear, 4-Nonylphenol, branched and linear, ethoxylated and 4-(1,1,3,3- tetramethylbutyl)phenol, ethoxylated (4-tert-OPnEO) are listed on the **Candidate List of Substances of Very High Concern** for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method: ISO 18254 (textile)
ISO 18218-1 (leather)

Detection limit: 10 mg/kg

7.1.2 Aliphatic organic solvents

Material categories concerned: Textile, Leather

Limit value: No odor.
Properties: Liquids or gases. Inhalation can affect the nervous system and cause headache, fatigue and nausea. Cause irritation on skin, eyes, and mucous membranes.
Use: Solvents for dyeing and printing. Solvents that have been used for cleaning of spinning oils from textiles are often found in amounts of 10-20 mg/kg. The limit for humans to sense a smell lies around 100 mg/kg for most substances.
Comments: Aliphatic organic solvents are volatile organic compounds (VOC). There are statutory hygienic limit values for employees in many countries.
Legal background: Manufacturers are required to follow the "VOC Directive", 1999/13/EC.
Test method: SNV 195 651, screening method. Panel-odor-test.

Detection limit: No odor.

7.1.3 Aromatic organic solvents

Material categories concerned: Textile, Leather, Packaging

Limit value: Not allowed to be present in products.
Properties: Liquids or gases. Inhalation can affect the nervous system and cause headache, fatigue and nausea. Cause irritation on skin, eyes and mucous membranes. Kerosene and diesel odor in finished products. Some aromatic organic compounds are carcinogenic.
Use: Solvents for dyeing and printing textile and leather. Stain removal. Coatings, binders and adhesives.
Comments: Aromatic organic solvents are volatile organic compounds (VOC). Use solvents of higher quality with lower levels of aromatic hydrocarbons or synthetic thickeners based on polycarboxylic acids. Replace simple aromatic hydrocarbons (petrol) with low-molecular-weight aliphatic hydrocarbons. To avoid problems with organic solvents, switching to water-based dyeing and printing processes is recommended.

There are statutory hygienic limit values for employees in many countries.

Legal background: Manufacturers are required to follow the "VOC Directive", 1999/13/EC.

Test method: SNV 195 651, screening method. Panel-odor-test.

Detection limit: No odor.

7.1.4 Bisphenol A; BPA (4,4'-isopropylidenediphenol)

Material categories concerned: various including plastic bottles, buckles or pots

Limit value: Forbidden to be used in processes or present in products.

CAS No 80-05-7

Properties: Toxic for reproduction

Use: Mainly used in manufacture of polycarbonate epoxy resins and chemicals; hardener in epoxy resins and in thermal prints.

Comments: Substance is often left as residues in polycarbonate and epoxy and can be found in products with material based on plastic and paper. BPA is part of a large family of chemicals called bisphenols.

Legal background: BPA is listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). BPA Bisphenol A (BPA) contained in thermal paper (0,02v%) is restricted from January 2020 (entry 66, annex XVII REACH).

Test method: N/A.
Test equipment: LC-MS, GC-MS.

Detection limit: There is no standard international detection limit yet.

7.1.5 C,C'-azodi(formamide) (ADCA)

Materials concerned: textiles bottoms for tents and various other

Limit value: Forbidden to be used in processes or present in products.

Properties: Respiratory sensitizer

CAS No 123-77-3

Use: Mainly as blowing agent in the rubber and plastics industry.
Foaming agent in especially EVA and PVC.

Comments: Can leave residues of formamide in the material. ADCA may decompose into semicarbazide a suspected carcinogen.

Legal background: ADCA is listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method: No standardised test method available for textiles.
Test equipment: GC-MS

7.1.6 Chlorinated organic solvents

Material categories concerned: Textile, Leather

Limit value: Forbidden to be used in processes or present in products.

Properties: Liquid or gas. Affect the nervous system. Irritating to skin and mucous membranes.

Use: Many chlorinated organic solvents are dangerous for the environment. Solvent used in the manufacture of rubber, metal paint and fur industry used for grease and oil, e.g. in stain removers. Also used in cleaning agents and detergents. Solvents in lubricating oils. Solvents in dyeing of synthetic fibers (carriers). Solvents in printing for textile and leather. Finishing agents. Fabric softeners. Also used as moth-proofing agent in textiles and for the manufacture of silk and pearls. See also under heading "Flame retardants".

Legal background: Legal limit: 0.1% by weight or forbidden for the below specified chlorinated solvents:

Solvent	CAS No	Legal framework	Legal requirement
Chloroform	67-66-3	REACH, Annex XVII	Shall not be placed on the market, or used as substances, as constituents of other substances or in mixtures in concentrations equal to or greater than 0.1% by weight
1,1,2 Trichloroethane	79-00-5	REACH, Annex XVII	
1,1,2,2 Tetrachloroethane	79-34-5	REACH, Annex XVII	
1,1,1,2 Tetrachloroethane	630-20-6	REACH, Annex XVII	
Pentachloroethane	76-01-7	REACH, Annex XVII	
1,1 Dichloroethylene	75-35-4	REACH, Annex XVII	
1,4-dichlorobenzene	106-46-7	REACH, Annex XVII	
Carbon tetrachloride	56-23-5	Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer	Shall not be produced, placed on the market, or used
1,1,1 Trichloroethane	71-55-6		
α,α,α,4-tetrachlorotoluene;	5216-25-1	Annex XVII of Regulation (EC) No 1907/2006 of the European	1 mg/kg in textiles (CMR fast track)

p-chlorobenzotrighloride		Parliament and of the Council (REACH).	
α,α-trichlorotoluene; benzotrighloride	98-07-7		
α-chlorotoluene; benzyl chloride	100-44-7		
Trichloroethylene	79-01-6	Candidate List of Substances of Very High Concern for authorization and annex XIV in Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH)	0.1% by weight in articles for information duty.
1,2,3-trichloropropane	96-18-4	Candidate List of Substances of Very High Concern for authorization in Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH)	0.1% by weight in articles for information duty.

Test method: Manufacturers in EU are required to follow the "IED", 2010/75/EU. No standardized test method available.
Test equipment: GC-MS, GC-ECD.

Detection limit: There is no standard international detection limit as of yet. For GC-MS it is 0.1 mg/kg.

7.1.7 Chromium VI (Cr + 6)

Material categories concerned: Textile, Leather

Limit value: Not allowed to occur in processes or present in products.
Chromium VI (Cr +6): CAS No.: 18540-29-9.

Properties: Dangerous for the environment. Carcinogenic. Allergenic. Toxic.

Use for textiles: Oxidation agent. Fixing chemical. Used for finishing of direct dyes to improve their wash fastness. Potassium dichromate is used for oxidation of

	vat and sulfur dyes. Chromium salts are used for preparation and finishing of acid dyes on silk and wool.
Use for leather:	Tanning with basic chromium salts is the most widely used method where chromium VI (6+) may occur as an impurity. Etching of artificial leather and rubber.
Comments:	Chrome (III) is an alternative as fixing agent in mordant dyeing. Use direct dyes or acid dyes with high colorfastness to avoid use of chromium salts for dyeing of polyamide, silk, wool and leather. Use hydrogen peroxide and other per-salts to avoid the use of chromium VI (6+) based salts. Vegetable tanning agents are alternatives for leather. Tanning with titanium is an emerging technology.
Legal background:	Legal limit: 0.1% by weight Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Chromium (VI) compounds listed on the Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH) are listed in Appendix 5. Several Chromium compounds are also included in REACH Annex XIV. The German Commodities Ordinance (Bedarfsgegenständeverordnung), Appendix 422 regulates that: chromium (VI) may not be detected in products made of leather, which is designed not only to temporarily come into contact with the human body, especially clothing, watchbands, handbags, backpacks, chair covers, etc. Note that the EU ban on hexavalent chromium in leather articles with skin contact is regulated in REACH Annex 17 and <u>entered into force on 1 May 2015</u> . <i>From 2020, chromium VI compounds will have a restriction limit of 1 mg/kg (extractable Cr VI content) in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).</i>
Test method:	ISO 17075 for leather. No standardized test method available for textiles. Test equipment: UV-VIS Spectrometer; ICP-MS
Detection limit:	<3 mg/kg for leather; legal requirement is 3 mg/kg in REACH Annex XVII; 0.5 mg/kg for textiles

7.1.8 Cobalt (II) chloride

Material categories concerned: silica gel packs or moisture absorbents in packaging

Limit value:	Not allowed to use in Fenix Outdoor packaging/ moisture absorbents Cobalt dichloride: CAS Nos.: 7646-79-9; 7791-13-1 (hydr.)
Properties:	Toxic for reproduction, carcinogenic.
Use:	Indicator substance for moisture absorbents
Legal background:	EU 2001/95/EC
Test method:	X-ray fluorescence analysis

See also: 7.2.9

7.1.9 Ethylenediamine (EDA)

Material categories concerned: textiles and textile components

Limit value:	Do not use: Not to be present in products. CAS No. 107-15-3
Properties:	Respiratory and skin sensitizer
Use:	Used in the production of many industrial chemicals. Used in the production of polyurethane fibres.
Legal background:	Ethylenediamine is listed on the Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH).
Test method:	No standardised test method available.

7.1.10 Ethylenethiourea

Material categories concerned: rubber soles and other rubber components

Limit value:	Should not be present in products. Use only in controlled production systems. Imidazolidine-2-thione (2-imidazoline-2-thiol) also called ethylenethiourea: CAS No. 96-45-7
Properties:	Toxic for reproduction.
Use:	Used primarily as an accelerator for vulcanizing rubber
Legal background:	Ethylenethiourea is listed on the Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH).
Test method:	No standardized test method available. Test equipment: LC-MS

7.1.11 Formamide

Material categories concerned: textiles, synthetic leather

Limit value:	<u>Forbidden to</u> be present in products.
Properties:	Toxic for reproduction. CAS No 75-12-7
Use:	Formamide is used as solvent for example in the production of synthetic leather and inks. Furthermore, formamide is used as a solvent and plasticizer in consumer products. It can be an ingredient as softener for paper, water soluble glues and wood stains. During processing of foam, formamide is formed as a by-product at higher temperatures. Especially tosylsemicarbazide and azodicarbonamide (see headline ADCA above) are responsible for the presence of formamide in EVA-consumer products.
Comments:	For the application as solvent, formamide might be replaced by other solvents like dipropylene glycol. Potential alternatives as N,N-dimethylformamide, N-methylformamide or ethylene glycol ethers are <u>not considered</u>

to be adequate substitutes due their similar toxicity to reproduction.

Legal background: Formamide is listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Formamide is restricted in puzzle mats in Belgium and France and will be included in the Toy Safety Directive in 2017 (limit value 200 mg/kg).

Test method: Solvent extraction.
Test equipment: GC-MS or LC-MS

7.1.12 Dimethylfumarate

Material categories concerned: products, accessories, leather

Limit value: Not allowed in Fenix Outdoor products or packaging
Dimethylfumarate: CAS No. 624-49-7
Properties: Allergic sensitizer, toxic even in low concentrations
Use: Fungicide to prevent mold
Legal background: EU Regulation 1907/2006/EC
Test method: CEN/ISO/TS 16186 (mod.)
Detection limit: < 0.1 mg/kg

See also: 7.2.24

7.1.13 Hydrazine

Material categories concerned: Accessories, Packaging

Limit value: Not to be used in processes or present in products.
Hydrazine: CAS Nos.302-01-2,7803-57-8
Properties: Carcinogenic, allergenic, toxic.
Use: Mainly used as a foaming agent in preparing polymer foams
Legal background: Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH).
Test method: No standardized test method available for textiles.
Test equipment: GC-MS
Detection limit: There is no standard international detection limit as yet.

7.1.14 Other organic solvents

DMFa (N,N-dimethylformamide)

Material categories concerned: Textile; Leather; Packaging

Limit value: Forbidden to use in processes or present in products.
N,N-dimethylformamide (DMFa): CAS No 68-12-2
Properties: Toxic to reproduction.

- Use:** Used as solvent and in production of leather imitation (PU). An intermediate for paper finishing. It may have a faint amine odor in finished products. Use "water-based" PU which does not contain DMFa.
- Legal background:** Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH). **From 2020**, DMFa will have a restriction limit of 3000 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Restricted in polyurethane-coated work gloves work gloves in Germany The maximum DMFa content must be less than 10 mg/kg glove material (TRGS 401).
- Test method:** No standardized test method available for textiles.
Test equipment: GC-MS
- Detection limit:** EN 16778:2016 (leather)

DMAC

Material categories concerned: Textile, Leather, Accessories, Packaging

- Limit value:** Forbidden to use in processes or present in products.
N, N-dimethylacetamide (DMAC): CAS-No 127-19-5
- Properties:** Toxic to reproduction, irritating.
- Use:** Used as solvent and in industrial coatings, polyimide films, paint strippers and ink removers
- Legal background:** Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH). **From 2020**, DMAC will have a restriction limit of 3000 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
- Test method:** No standardized test method available for textiles.
- Test equipment:** GC-MS, LC-MS
- Detection limit:** There is no standard international detection limit as yet. For LC-MS 1 mg/kg can be expected.

N-Ethyl-2-pyrrolidone (NEP)

Material categories concerned: Textile, Leather, Accessories, Packaging

- Limit value:** Not to be used in processes or present in products.
CAS No 2687-91-4
- Properties:** Carcinogenic, reproduction toxicity, skin irritation, respiratory toxicity.
- Use:** Mainly used as a solvent in glue formulas
- Legal background:** Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH). It is required to follow the "VOC Directive", 1999/13/EC.
- Test method:** No standardized test method available for textiles.
CEN ISO/TS 16189 (footwear and footwear components)
Test equipment: GC-MS, LC-MS
- Detection limit:** There is no standard international detection limit as yet. For LC-MS 1.0 mg/kg can be expected.

N-methyl-2-pyrrolidone (NMP)

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:	<u>Not be used</u> in processes or present in products. N-methyl-2-pyrrolidone (NMP): CAS No 872-50-4
Properties:	Toxic to reproduction, irritating.
Use:	Good solvency properties for polymers. Solvent for glues. Surface treatment of textiles, resins and metal coated plastics or as a paint stripper. Intermediates for textile auxiliaries, plasticizers, stabilizers and specialty inks. Note that NEP (1-ethylpyrrolidin-2-one), CAS No 2687-91-4 is not a suitable alternative to NMP since it is Repr. Tox. 1B.
Legal background:	Polyamide precursor. SBR (styrene-butadiene) latex production. Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH). From 2020 , NMP will have a restriction limit of 3000 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Test method:	No standardized test method available for textiles. Test equipment: GC-MS, LC-MS
Detection limit:	There is no standard international detection limit as yet. For LC-MS 1.0 mg/kg can be expected.

7.1.15 PAH - Polycyclic aromatic hydrocarbons

Material categories concerned: Accessories, Leather, Wood

Limit value:	<u>Forbidden to use</u> in processes or present in products. Restricted under REACH Benzo(a)anthracene, CAS No 56-55-3 Benzo(a)phenanthrene (chrysene), CAS No 218-01-9 Benzo(a)pyrene, CAS No 50-32-8 Benzo(b)fluoranthene, CAS No 205-99-2 Benzo(j)fluoranthene, CAS No 205-82-3 Benzo(k)fluoranthene, CAS No 207-08-9 Dibenzo(a,h)anthracene, CAS No 53-70-3 Benzo[e]pyrene, CAS No 192-97-2 Benzo[ghi]perylene CAS No 191-24-2 Restricted under German laws and several US regulations: Indeno(1,2,3-cd)pyrene, CAS No 193-39-5 Benzo(j,k)fluorene (fluoranthene), CAS No 206-44-0 Naphthaline, CAS No 91-20-3 Anthracen, CAS No 120-12-7 Pyren, CAS No 129-00-0 Benzo[g,h,i]perylene, CAS No 191-24-2 Acenaphthylen, CAS No 208-96-8 Acenaphthen, CAS No 83-32-9
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Phenanthren, CAS No 85-1-8
Fluoren, CAS No 86-73-7
Benzo(r,s,t)pentaphene, CAS No 189-55-9
Dibenzo(a,h)pyrene, CAS No 189-64-0
Dibenzo(a,l)pyrene, CAS No 191-30-0
Dibenzo(a,e)pyrene, CAS No 192-65-4
7H-Dibenzo(c,g)carbazole, CAS No 194-59-2
Dibenz(a,j)acridine, CAS No 224-42-0
Dibenz(a,h)acridine, CAS No 226-36-8
5-Methylchrysene, CAS No 3697-24-3
Dibenzo(a,e)fluoranthene, CAS No 5385-75-1
1-Nitropyrene, CAS No 5522-43-0
3-Methylcholanthrene, CAS No 56-49-5
7,12-Dimethylbenz(a)anthracene, CAS No 57-97-6

Properties:

Carcinogenic, allergenic, toxic.

Use:

PAHs are not synthesized chemically for industrial purposes. The major source of PAHs is the incomplete combustion of organic material such as coal, oil and wood. They are mostly used as intermediaries in pharmaceuticals, agricultural products, photographic products, thermosetting plastics, lubricating materials, and other chemical industries. May be found as impurities in rubber materials and leather

Legal background:

Materials in toys or childcare articles that come into direct contact with the human skin shall not include of any of the listed PAHs in amounts more than 0,5 mg/kg
For materials in other product categories the limit value is 1 mg/kg
The above mentioned PAHs are listed in annex XVII of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) from 27 December 2015.
The voluntary German GS standard has requirements for the sum of 16 PAH (the 16 U.S. EPA listed compounds) and also specifically benzo [a] pyrene, that most products in the German market follows.
Benzo(a)anthracene (56-55-3), Chrysene, (218-01-9), Benzo(a)pyrene (50-32-8), Anthracene (120-12-7), and anthracene oil distillation fractions and Benzo[ghi]perylene (191-24-2) are included in the Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH).
For products or parts of products, which may come into contact, the sum of all PAH 10 mg/kg of material and specifically benzo [a] pyrene not to exceed 1mg/kg.
For products that are expected to have only a short-term skin contact is for 200 mg PAH/kg and 20 mg benzo [a] pyrene/kg. The sum of all PAHs consists of the 16 U.S. EPA listed compounds. The limits are thus different for different product groups and can be as low as 0.2 mg/kg.
Japanese Law:

Prohibition of levels above 3 ppm of Dibenzo (a, h) anthracene (CAS No.53-70-3), Benzo (a) anthracene (CAS No. 56-55-3) and Benzo (a) pyrene (CAS No. 50 - 32-8) in wood products for consumers.

Note that the prohibition of PAHs in plastic, rubber and toys in REACH Annex 17 entered into force 27 December 2015.

From 2020, the following PAHs will have a restriction limit of 1 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH):

Benzo(a)anthracene,

Benzo(a)phenanthrene (chrysene),

Benzo(a)pyrene,

Benzo(b)fluoranthene (benz(e)acephenanthrylene)

Benzo(j)fluoranthene,

Benzo(k)fluoranthene,

Dibenzo(a,h)anthracene,

Benzo[e]pyrene

Test method: ISO 21461 (NMR)
AfPS GS 2014-01 PAK
ISO/TS 16190 (footwear)

Detection limit: 0.2 mg/kg

7.1.16 Quinoline

Material categories concerned: textiles and fabrics

Limit value: Not to be used in processes or present in products.
CAS No. 91-22-5

Properties: Carcinogenic and mutagenic.

Use: Quinoline is used mainly as an intermediate in the manufacture of other products. Quinoline is also used as a catalyst, a corrosion inhibitor, in metallurgical processes, in the manufacture of dyes, in polymers, and as a solvent for resins and terpenes.

Legal background: From 2020, quinoline will have a restriction limit of 50 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method: No standardised test method available for textiles.
Test equipment: GC-MS, LC-MS.

7.1.17 Methylenediphenyl diisocyanate (MDI)

Material categories concerned: polyurethane, polyamide, other plastics (textiles, accessories, packaging)

Limit value: Forbidden to be present in finished product
Methylenediphenyl diisocyanate CAS No.: 26447-40-5

Properties: carcinogenic; other properties under review

Use: Input material for various plastics, including PU and acrylamide; possible residue in Elastane / Spandex

Legal background: currently under evaluation (REACH); classified as hazardous according to Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method: LC-MS

Detection Limit: 0.1%

7.1.18 Trichlorobenzene

Material categories concerned: products and packaging; substance is used in colors, solvents and process reactants.

Limit value: Not to be used in process and not be present in products
1,2,3-Trichlorobenzene CAS No.: 87-61-6
1,2,4-Trichlorobenzene CAS No. : 120-82-1
1,3,5-Trichlorobenzene CAS No. : 108-70-3

Properties: very toxic to aquatic life, very toxic to aquatic life with long lasting effects, harmful if swallowed, causes skin irritation

Use: solvent and reactant or intermediary product in processes, coloring and polyester production; certain processes substitute trichlorobenzene with naphthalene (CAS No.: 91-20-3), often used in mothballs (specific odor). Since naphthalene is banned within Fenix Outdoor as well, this substitution is not an option.

Legal background: Listed in annex XVIII of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method: DIN 54232

7.1.19 Cyclohexane

Material categories concerned: cleaning solvent for textiles and leather

Limit value: Not be used
Cyclohexane CAS No.: 110-82-7

Properties: highly flammable, respiratory allergen, skin sensitizer

Use: often used as spot-remover in final quality control of fabrics, textiles, shoes and hardware

Legal background: EU Regulation 1907/2006/EC

Test method: GC-MS, semi-quant.; headspace 30 min/110°C

Detection limit: 0.1%

7.1.20 Solvents miscellaneous

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value: The following solvents must have specific statements on the label of the product they are part of:
(1) diethylene glycol,
(2) ethylene glycol,
(3) benzene, toluene, xylene, petroleum distillates,
(4) Methyl alcohol (methanol),
(5) turpentine
There are exceptions for smaller containers shoe waxes, furniture polish, etc. products at low volatility of the solvent.

Legal background: Regulated in the (USA) Federal Hazardous Substances Act (FHSA) -16 CFR 1500.14 –Products. Requiring special labeling of the product under section 3 (b) of the act. **From 2020**, benzene (CAS-RN 71-43-2) will have a restriction limit of 5 mg/kg in textiles (CMR fast track) according to Annex XVII of

Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

7.1.21 Tin organic compounds (Organostannic compounds)

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:	<u>Forbidden to be present</u> in products. Various compounds are even banned to be detected. Do not use in production!
Properties:	Tributyltin (TBT), dibutyltin and dioctyltin compounds are different chemical substances that are toxic and dangerous for the environment. They are bio-accumulative and persistent.
Use:	Dibutyltin compounds (DBT) and dioctyltin compounds (DOT) are used in consumer products as stabilizers (mainly PVC) or as catalysts (PU and PVC). Organo-tin catalysts are used in a wide variety of polyurethane applications, aiding formation of the urethane bond and generally functioning as Lewis acid catalysts.
Comments:	Alternative stabilizers are barium/zinc, potassium/zinc, calcium, or calcium/zinc organic stabilizers or methyltin stabilizers. Alternative catalysts can be organo-titanate or zirconate compounds (e.g. titanium 2-ethylhexanoate) or amines such as bis- (dimethylaminoethyl) ether (BDMAEE) and triethylenediamine (TEDA) along with organo-metallic compounds such as potassium acetate. Dialkyl tin compounds represents a large family of substances 14 that consist of the following common constituents, see list of DBTs in Appendix 4. Trialkyltin compounds are biocides, see also the section regarding biocidal agent.
Legal background:	Legal Limit: 0.1% by weight Dioctyltin (DOT), dibutyltin (DBT) compounds and tri-substituted organo-stannic compounds such as tributyltin (TBT) are listed in annex XVII of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Tributyltin oxide (TBTO), 56-35-9, is listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) Triphenyltin (TPT) and tributyltin (TBT) compounds are banned in detectable levels in textiles and other consumer products by Japan Law 112 for the Control of Household Products Containing Harmful Substances (10/01/1974).
Test method:	No standardized test method for textile available. EN ISO17353 (water and sediment) CEN ISO/TS 16179 (footwear) Test equipment: GC-MS.
Detection limit:	0.015 mg/kg.

7.2 Product-related Chemicals

7.2.1 Allergenic disperse dyes

Material categories concerned: Textile, Leather

→ 21 substances listed in Appendix 1

Limit value:	<u>Forbidden to be present</u> in textiles or leather imitation.
Properties:	Highly allergenic (strong sensitizers). They may also have other hazardous properties.
Use:	Dyeing of textile and synthetic leather goods.
Comments:	Alternatives: Use other dyes that do not cause allergies.
Legal background:	Legal limit: 0.1% by weight for Navy Blue, EC# 405-665-4 in chemical preparations used for coloring textile and leather articles in Annex XVII (entry 43) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Eight disperse dyestuffs are banned in Germany, see Appendix 1.
Test method:	DIN 54231 (qualitative) Extractable dyestuffs will be tested by EN ISO 16373
Detection limit:	50 mg/kg (per substance)

7.2.2 Azo dyes, degradable to carcinogenic arylamines

Material categories concerned: Textile, Leather, Accessories, Packaging

→ 24 substances listed in Appendix 2

Limit value:	Azo-dyes that are degradable to carcinogenic arylamines should not be present in products. It is strongly recommended to use more environmentally suitable alternatives.
Properties:	Carcinogenic. Some are allergenic. Arylamines can form part of the molecular structure of a dye. Certain azo-dyes can form the 24 listed banned arylamines.
Use:	Constituent of dyes, mainly disperse dyes. Dyeing and printing.
Comments:	Dyes that can release any of the 24 aromatic amines may not be used. See Appendix 2 for a description and listing of banned dyes. This regulation applies to azo-colorants which also covers azo-dye stuffs and azo-pigments.
Legal background:	Legal limit textile: 0.002 % by weight (20 mg/kg) per each of the arylamine breakdown products. Legal limit leather 0.003 % by weight (30 mg/kg) per each of the arylamine breakdown products. Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) and GB/T 17592.1
Test method:	EN 14362-1, -3 for textile. EN 17234-1 for leather. GB/T 17592.1
Detection limit:	20 mg/kg (per each of the arylamine breakdown products)

7.2.2.1 Other relevant dye stuff

Material categories concerned: textiles

Limit value:	<u>Not be used</u>
Properties:	Carcinogenic
Use:	Dye stuff
Legal background:	EC Regulation 2001/95/EC; 2009/84/EC
Test method:	EN 71-9/-10/-11

See Appendix 1 and Appendix 3

7.2.3 Benzotriazols (UV-320, UV-327, UV-328 and UV-350)

Limit value:	<u>Forbidden to be present</u> in products. 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320), CAS No 3846-71-7 2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327), CAS No 3864-99-1 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328), CAS No 25973-55-1 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350), CAS No 36437-37-3
Properties:	Persistent, Bioaccumulative and Toxic; Very Persistent and very Bioaccumulative
Use:	UV-stabilizer for plastics, polyurethanes and rubber and constituent in formulations used for coating of surfaces, e.g. cars or special industrial wood coatings. Also used in dishwasher detergents, dry cleaning equipment, and de-icing/anti-icing fluids
Legal background:	Legal limit: 0.1% by weight UV-320, UV-327, UV-328 and UV-350 are listed in the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Test method:	No standardised test method available. Test equipment: GC-MS, LC-MS, GC-ECD

7.2.4 Boric acid, borate compounds

Material categories concerned: Packaging

Limit value:	<u>Not to be present</u> in products. Boric acid, CAS No.10043-35-3 and 11113-50-1 Disodium tetraborate anhydrous, CAS No. 1303-96-4, 12179-04-3 and 1330-43-4, Disodium octaborate, CAS No. 12008-41-2 Tetraboron disodium heptaoxid, hydrate, CAS No. 12267-73-1 Sodium perborate; perboric acid, sodium salt, CAS No. 234-390-0 Sodium peroxometaborate, CAS No. 7632-04-04
Properties:	Toxic. May impair fertility and cause harm to unborn child.
Use:	Wood veneers/pressed wooden panels and boards. Boric acid and other boron compounds may be used as flame retardant in cellulosic

materials, mainly wood and biocide in boards. Borate compounds may be used as bleaching agents in chemical preparations.

Legal limit:	0.1 % by weight Boric acid, disodium tetraborate anhydrous, disodium octaborate, tetraboron disodium heptaoxid, hydrate, sodium perborate; perboric acid, sodium salt and sodium peroxometaborate are listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH)
Test method:	Test equipment: 1) AAS. 2) ICP-MS and ICP-OES
Detection limit:	1) 1000 µg/kg as Boron. 2) 100 µg/kg as Boron.

7.2.5 Cadmium (Cd) and cadmium salts

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:	<u>Forbidden to be present</u> in products. Occurrence in materials below 0.5 mg/kg is regarded as contaminations, which cannot be controlled. Cadmium (metal), CAS No. 7440-43-9
Properties:	Heavy metal that occurs naturally in small quantities in nature. Toxic to aquatic organisms. Non-biodegradable. Dangerous for the environment. Can cause kidney damage.
Use (textile/leather):	Can occur in <u>pigmented plastisol prints</u> .
Use (accessories/ packaging):	Surface treatment. Pigment in coloring agent. Also in plastics as stabilizers and pigment. Cadmium based stabilizers are used to increase the endurance of the material. For recycled packaging cadmium may have had a different original use.
Comments:	Alternatives are available, such as calcium-zinc based stabilizers. Order cadmium-free processes and materials.
Legal background:	Legal limit: 0.01 % by weight (100 mg/kg). Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) Cadmium, Cadmium oxide (CAS No. 1306-19-0), Cadmium sulfide (CAS No. 1306-23-6) and Cadmium chloride (CAS No. 10108-64-2) are listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). The sum of concentration levels of lead, cadmium, mercury and hexavalent chromium present in packaging or packaging components shall not exceed 100 ppm by weight. Directive (EC) No 94/62/EC of 20 December 1994 on packaging and packaging waste. From 2020 , cadmium and its compounds will have a restriction limit of 1 mg/kg (extractable content) in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Cadmium is restricted in Denmark. Danish legal limits: 75 mg/kg. (<i>Bekendgørelse nr. 858 af 5. September 2009 om forbud mod import salg og fremstilling af cadmiumholdige varer</i>).
Test method:	EN 16711-1 (total content in textiles). EN 16711-2 (extractable content in textiles) EN ISO 17072-1 (extractable content in leather)

EN ISO 17072-2 (total content in leather)

7.2.6 CMR, Carcinogenic, Mutagenic, Reproductive toxic dyestuffs

Material categories concerned: Textile, Leather, Accessories, Packaging

→ 15 substances listed in Appendix 3

Limit value:	<u>Forbidden to be present</u> in products.
Properties:	Carcinogenic Mutagenic, Reproductive toxic. Characteristics: Dyestuffs that are classified as carcinogens, mutagenic, reproductive toxic according to CLP including class 2 (only 1A and 1B are CMR)
Use:	Dyeing of textile and leather goods.
Comments:	Alternatives: Use other dyestuff than the substances in Appendix 3.
Legal background:	C.I. Solvent Blue 4, C.I. Basic Blue 26, C.I. Basic Violet 3, Michler's base (CAS No. 101-61-1), 4,4'-bis(dimethylamino)-4''-(methylamino) trityl alcohol (CAS No. 561-41-1) 1), C.I. Direct Black 38 (CAS No. 1937-37-7) and C.I. Direct Red 28 (CAS No. 573-58-0) are listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) Restrictions for use of substances, harmonized classified as CMR according to CLP, as substances, as constituents of other substances or in mixtures. These are found in REACH Annex XVII, entry 28-30. From 2020 , C.I. Disperse Blue 1, C.I. Basic Red 9 and C.I. Basic Violet 3 with $\geq 0,1$ % of Michler's ketone will have a restriction limit of 50 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Test method:	Azo-dyestuffs can be tested indirectly by breakdown product arylamines with EN 14362-1, -3 for textiles and leather. EN ISO 17234 for azo-colorants in leather. Extractable dyestuffs will be tested by EN ISO 16373

7.2.7 Chloroparaffins

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:	<u>Forbidden to be present</u> in products. Short-chain chloroparaffins (C10-C13), CAS No.85535-84-8 Medium-chain chloroparaffins (C14-C17), CAS No. 85535-85-9 Long-chain chloroparaffins (C18-), CAS No. 85535-86-0
Properties:	Dangerous for the environment. Allergenic. Toxic.
Use in textile:	Plasticizers and flame retardant in plastic material.
Use in leather:	Plasticizers in coated synthetic or "fake"-leather. Fat liquoring agent in leather production.
Use in accessories and packaging:	Plasticizers and flame retardant in plastic material and rubber.

Comments:	Replace chloro-organic chemical flame retardants with phosphorus- and/or nitrogen-based organic chemical flame retardants or non chemical barrier technologies. Alternative plasticizers are available but must be evaluated.
Legal background:	Legal limit: Shall not occur, meaning below the detection limit according to best laboratory practice (< 100 mg/kg). Short-chain chloro-paraffins are listed as proposed POP ¹ in the Stockholm Convention on Persistent Organic Pollutants (POPs) and are banned by Regulation (EC) No 850/2004. Short-chain chloroparaffins (C10-C13) are listed on the Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH).
Test method:	No standardized test method available for textiles. ISO 18219 (leather) Test equipment: GC-MS, LC-MS
Detection limit:	There is no standard international detection limit as yet.

7.2.8 Chromium VI (Cr + 6)

Material categories concerned: Leather, Accessories, Packaging

Limit value:	<u>Forbidden to be present</u> in products. Chromium VI (Cr+6), CAS No.18540-29-9.
Properties:	Dangerous for the environment. Carcinogenic. Allergenic. Toxic.
Use:	Chromated metal parts. Chromic acid is used as wood preservative; chromium tanning of leather may produce Cr + 6 as unwanted by-product
Comments:	Chrome (III) is an alternative in surface treatment of metal
Legal background:	Legal limit: 0.0003% by weight (3 mg/kg) for leather in direct skin contact. Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Chromium (VI) compounds listed on the Candidate list of Substances of Very High Concern (SVHC) for the authorization of the Regulation (EC) No 1907/2006 of the European Parliament of the Council (REACH) are listed in Appendix 5: Several Chromium compounds are also included in REACH Annex XIV. The sum of concentration levels of lead, cadmium, mercury and hexavalent chromium present in packaging or packaging components shall not exceed 100 ppm by weight. Directive (EC) No 94/62/EC of 20 December 1994 on packaging and packaging waste.

¹ Persistent Organic Pollutants (POPs) are organic chemical substances, which remain intact for exceptionally long periods of time, become widely distributed in the environment, accumulate in the fatty tissue of living organisms and toxic to both humans and wildlife

Test method: ISO 17075 for leather.
Test equipment: XRF screening for metal chromium No standardized test method available for textiles.
Test equipment: UV-VIS Spectrometer

Detection limit: 3 mg/kg /(leather)
0.5 mg/kg (in textiles)

7.2.9 Cobalt (II) chloride

Material categories concerned: Packaging

Limit value: Banned. Strictly forbidden to be present in products. CAS No.7646-79-9

Properties: Pale-blue; hygroscopic powder; it turns pink on exposure to air and moisture. The substance may have effects on the heart, thyroid and bone marrow. Repeated or prolonged inhalation exposure may cause asthma.

Use: Added in Silica gel for the detection of moisture, in the silica gel.

Legal background: Cobalt (II) chloride is banned in Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) – listed as substance of very high concern (SVHC).

7.2.10 Formaldehyde

Material categories concerned: Textile, Leather, Accessories (wood)

Limit value: 20 mg/kg for textiles and leather goods for children under the age of two.
75 mg/kg for all textiles and leather goods that come into direct contact with the skin during normal use.
300 mg/kg for all other textiles and leather goods.
Japanese law 112 requires under detection limit for products for infants (less than 5 absorbance units).

Properties: Formaldehyde, CAS No. 50-00-0
Volatile colorless gas. Occurs naturally in small quantities in the atmosphere and in nature. Formaldehyde is a human carcinogen that can also cause skin irritation and allergy.

Use: Shrinkage-resistant treatment. Wrinkle-resistant treatment. Dirt-repellent treatment. Dye fixing agent. Preservative. Also used as bonding agent and glue-component.

Comments: Use products without formaldehyde in textiles and shoes or with very low concentrations of formaldehyde in accessories. Due to its volatility, formaldehyde is "contagious". If a garment containing formaldehyde is placed on top of a garment without formaldehyde, the latter garment will be "infected". Fabric samples for testing must be packed in air dense plastic bags (polyethylene, PE, or polypropylene, PP).

Legal background:

Country	Regulations / Requirements	Objection limit / Limit
Germany	Bedarfsgegenständeverordnung (German Commodities Regulation), Annex III, No 9. 26.10.1993	Textiles that normally come into contact with the skin and release more than 1500ppm formaldehyde must bear the label "Contains formaldehyde! Washing this garment is recommended prior to first time use in order to avoid irritation of the skin."
France	Official Gazette of the French Republic, Notification 97/0141/F	For products intended to come in contact with human skin – Textiles for babies: 20ppm Textiles in direct skin contact: 100ppm Textiles not in direct skin contact: 400ppm
Netherlands	The Dutch (Commodities Act) Regulation on Formaldehyde in Textiles (July 2000)	Textiles in direct skin contact must be labeled "Wash before first use" if they contain more than 120ppm formaldehyde and the product must not contain more than 120ppm after wash.
Austria	Formaldehydverordnung, BGBl Nr. 194/1990	Textiles that contains 1500 mg/kg or above must be labeled.
Finland	Decree on Maximum Amounts of Formaldehyde in Certain Textiles products (Decree 210/1988)	Textiles for babies under 2 years: 30ppm Textiles in direct skin contact: 100ppm Textiles not in direct skin contact: 300ppm
Norway	Regulations Governing the Use of a Number of Chemicals in Textiles (April 1999)	Textiles for babies under 2 years: 30ppm Textiles in direct skin contact: 100ppm Textiles not in direct skin contact: 300ppm
China	Limits of Formaldehyde Contents in Textiles GB18401-2001	Textiles for infants and babies: ≤ 20ppm Textiles in direct skin contact: ≤75ppm Textiles not in direct skin contact: ≤ 300ppm
Japan	Japanese Law 112	Textiles for infants: not detectable (16ppm) Textiles in direct skin contact: 75ppm

From 2020, formaldehyde will have a restriction limit of 75 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

NOTE: During a transition period, jackets, coats or upholstery will have a restriction limit of 300 mg/kg.

Test method:	EN ISO 141 84-1(textiles) ISO 17226 (leather) Test method specified in Japan law 112, JIS L1041:2011 GB/T 2912.1
Detection limit:	Children wear in Japan: 0.05 absorbance units; < 16 mg/kg

7.2.11 Hexabromocyclododecan (HBCDD)

Material categories concerned: Textile, Packaging

Limit value:	<u>Forbidden to</u> be present in products. Hexabromocyclododecane (HBCDD), CAS No. 25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7 and 134237-52-8
Properties:	Persistent, bioaccumulative and toxic. Halogenated organic additives in polymers may leach-out and have a negative impact on health and environment. Halogen containing polymers may form highly corrosive substances and an undefined range of halogenated substances that may be PBT or CMR when incinerated.
Use:	Flame-retardant treatment of products, (i.e upholstery and interior textiles), where fire protection is required. Also used in packaging flakes made of polystyrene (PS).
Comments:	Avoid this form of treatment. Replace bromo-organic chemical flame retardants with less problematic alternatives, e.g., phosphorus- and/or nitrogen-based organic chemical flame retardants or non-chemical barrier-technologies such as blends of natural and synthetic fibers used in furniture and mattresses and high performance synthetic materials used in firefighter uniforms and other protective clothing. Textile goods for private use are basically never flame-retardant-treated. The only case when textile goods are treated with flame retardant is if the end customer orders this property. Usually it is done to satisfy regulatory requirements of fire protection.
Legal background:	Legal limit: Shall not occur, meaning below the detection limit according to best laboratory practice. Hexabromocyclododecane (HBCDD) and all major isomers are listed in both annex XIV and in the Candidate List of Substances of Very High Concern for authorization of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Hexabromocyclododecane (HBCDD, CAS 25637-99-4 and 3194-55-6) is listed in the Stockholm Convention on Persistent Organic Pollutants (POPs) and banned by Regulation (EC) No 850/2004.
Test method:	EN ISO 17881-1 (textiles). Test equipment: GC-MS, LC-MS, GC-ECD
Detection limit:	There is no standard international detection limit as yet. For LC-MS. 1.0 mg/kg can be expected.

7.2.12 Lead (Pb) and lead salts

Material categories concerned: Accessories, Packaging, Hardware

Limit value:	<u>Not to be present in products.</u> In case it is part of the construction it should not leach or get into the atmosphere (smelt) or in contact with human skin/ mucosal membranes or foodstuff.
Properties:	Lead (metal), CAS No 7439-92-1 Lead exposure can give rise to a number of negative health effects, including damage to liver, nervous system and fetuses. Lead is mainly accumulated in bone tissue. It has a very long half-life. Use of lead in plastics has not been deemed to cause any significant environmental or health effects in the short term, but in the long term such use increases lead concentrations in the environment.
Use:	Lead salts are additives in plastics as stabilizers to increase the service of life of the material. May be used in paint and in colored plastic material. Metallic surface coating of buttons and accessories. For recycled packaging material lead may have had a different original use. Lead metal can also be used to increase ductility of other metals.
Comments:	Alternative stabilizers are barium/zinc, potassium/zinc, calcium, calcium/zinc organic or methyltin stabilizers. Alternative catalysts can be organo-titanate or zirconate compounds (e.g. titanium 2-ethylhexanoate) or amines such as bis- (dimethylaminoethyl) ether (BDMAEE) and triethylenediamine (TEDA) along with organo-metallic compounds such as potassium acetate.
Legal background:	Lead and lead salts are listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). The sum of concentration levels of lead, cadmium, mercury and hexavalent chromium present in packaging or packaging components shall not exceed 100 ppm by weight. Directive (EC) No 94/62/EC of 20 December 1994 on packaging and packaging waste. Lead salts are restricted in paint products (no restriction on painted articles) within the EU. Lead and its compounds are restricted in jewelry articles and hair accessories within EU with a legal limit: 500 mg/kg (0.05%). Lead and its compounds are restricted in articles that may be placed in the mouth by children with the legal limit 500 mg/kg (0.05%). Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Lead is restricted in Denmark. Danish legal limits: 100 mg/kg. (<i>Bekendgørelse nr. 856 af 5. September 2009 om forbud mod import og salg af produkter, der indeholder bly</i>). Prohibited to manufacture, import, sell or offer for sale, a product designed for children which have more than 100 ppm lead in any part that is accessible to children. Prohibited to manufacture, import, sell or offer for sale, a consumer product which has more than 90 ppm of lead in paint and similar surface coating materials. This restriction also applies to toys and other articles intended for children as well as some furniture.

Requires that legal compliance is confirmed with a certificate.
Regulated in the (USA) Federal Consumer Product Safety Improvement Act (CPSIA) -Sec. 101. Children's products containing lead; lead paint rule

Exposure Reduction:

TSCA regulates the monitoring and management of the ban on lead-based paint. The term "lead-based paint" is defined as paint or other surface coatings that contain lead in excess of 1.0 mg per square centimeter or 0.5 percent by weight.

Regulated in the (USA) Federal Toxic Substances Control Act (TSCA) Title IV-Lead

From 2020, lead and its compounds will have a restriction limit of 1 mg/kg (extractable content) in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method:

EN 16711-1 (total content in textiles).

EN 16711-2 (extractable content in textile)

ISO 17072-1 (extractable content in leather)

ISO 17072-2 (total content in leather)

7.2.13 Mercury

Material categories concerned: Packaging, Textiles, Accessories

Limit value:

Forbidden to be present in products. Constructive use only if in a closed system.

Mercury (metal), CAS No. 7439-97-6

Phenylmercury neodecanoat, CAS No 26545-49-3

Phenylmercury octanoate, CAS No 13864-38-5

Phenylmercury 2-ethylhexanoate, CAS No 13302-00-6

Phenylmercury propionate, CAS No 103-27-5

Phenylmercury acetate, CAS No 62-38-4

Properties:

Heavy metal that occurs naturally in small quantities in nature. Toxic to aquatic organisms and non-biodegradable. Dangerous for the environment. Can cause kidney damage.

Use:

Phenylmercury compound are used as catalysts in the production of polyurethane coatings, adhesives, sealants and elastomers. For recycled packaging mercury may have had a different original use as, e.g., pesticide in woods.

Legal background:

0,01 %

Phenylmercury compound are restricted in articles in Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

The sum of concentration levels of lead, cadmium, mercury and hexavalent chromium present in packaging or packaging components shall not exceed 100 ppm by weight Directive (EC) No 94/62/EC of 20 December 1994 on packaging and packaging waste.

Mercury and its compounds are listed in the Rotterdam convention.

Prohibition of detectable levels (above 1 ppm) of organic mercury compounds in textiles and other consumer products. by Japan Law 112 for the Control of Household Products Containing Harmful Substances (10/01/1974)

Test method:	EN 16711-1 (textiles) EN ISO 17072-2 (leather) Test equipment: 1) XRF. 2) AAS. 3) ICP-MS and ICP-OES
Detection limit:	1) 50 mg/kg. 2) 100 µg/kg. 3) 10 µg/kg

7.2.14 Nickel (Ni), in accessories

Material categories concerned: Accessories

Limit value:	0.5 µg per cm ² and week for products intended to come into direct and prolonged contact with the skin. 0.2 µg per cm ² and week for piercing items.
Properties:	Nickel (metal), CAS No. 7440-02-0 Nickel is one of the most common substances that cause contact dermatitis. Highly allergenic (strong sensitizer).
Use:	Nickel is often used to improve alloys used in clothing accessories such as zippers, buttons and rivets.
Comments:	Refrain from using nickel-treated metals or nickel-containing metal coatings.
Legal background:	0.5 µg per cm ² and week for products intended to come into direct and prolonged contact with the skin. 0.2 µg per cm ² and week for piercing items. Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Test method:	Test method I: EN 12472 and EN 1811.
Detection limit I:	0.01 µg/cm ² /week Test method II: Screening test for nickel emission. Swedish pharmacies sell a test kit.
Detection limit II:	Qualitative indication only = no occurrence. (This screening method can also give a reading for other metals than Ni.)

7.2.15 Arsenic Compounds

Material categories concerned: Textiles, Accessories, Packaging

Limit value:	Forbidden in Fenix Outdoor products.
Properties:	May cause cancer. Toxic by inhalation and toxic if swallowed. Persistent, bioaccumulative and toxic.
Use:	In glass, in metal alloy, preservative.
Comments:	Apply arsenic free compounds.
Legal limit:	0.1% by weight Diarsenic Pentoxide; 1303-28-2 Diarsenic Trioxide; 1327-53-3 Triethyl arsenate; 15606-95-8 Arsenic acid; 7778-39-4 Calcium arsenate; 7778-44-1 are listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH)

As wood preservatives regulated in Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) (limit level; no intentionally added content)
From 2020, arsenic and its compounds will have a restriction limit of 1 mg/kg (extractable content) in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method: EN 16711-1 (total content in textiles).
EN 16711-2 (extractable content in textiles)

7.2.16 Other heavy metals

Material categories concerned: accessories, textiles, leather, packaging

Metals:	Antimony	CAS No.: 7440-36-0
	Arsenic	CAS No.: 7440-38-2
	Barium	CAS No.: 7440-39-3
	Cobalt	CAS No.: 7440-48-4

Limit value: Forbidden in product: Shall not be detectable/extractable
Properties: toxic when ingested and inhaled, skin irritation, sensitizer
Use: various uses (catalysts and stabilizers)
Comments: can be extracted by sweat and water and cause skin irritation; toxicity risks during production
Test methods: EN 16711-1/-2; DIN EN ISO 17072-1; ISO 11083/ DIN EN ISO 105-E04 (Cr VI)
Detection limit: not to be detected (max 0.1 mg/kg)

7.2.17 Phthalate esters

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value: 0.1% by weight (1000 mg/kg) for regulated phthalate in the material of interest (e.g. a print).
0,05% by weight (500 mg/kg) in toy's and childcare articles (for infants 0 - 3 years).
DEHP, CAS No 117-81-7
DBP, CAS No 84-74-2
BBP, CAS No 85-68-7
DINP, CAS No 28553-12-0 & 68515-48-0
DIDP, CAS No 26761-40-0 & 68515-49-1
DNOP, CAS No 117-84-0
DIBP, CAS No 84-69-5
DIHP, CAS No 71888-89-6
DHNUP, CAS No 68515-42-4
DMEP, CAS No 117-82-8
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear, CAS No 84777-06-0
DIPP, CAS No 605-50-5
N-pentyl-isopentylphthalate, CAS No 776297-69-9
Dipentyl phthalate (DPP), CAS No 131-18-0
Dihexyl phthalate (DnHP), CAS No 84-75-3

Properties:	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear (DIHP), CAS No 68515-50-4 Di-n-octyl phthalates (DnPP) DCHP (dicyclohexyl phthalate):84-61-7 DEHP and DIBP are classified as hazardous to health. DBP is classified as having health and environmental effects. BBP is classified as having health and environmental effects. DIDP is of concern in connection with hepatic toxicity. Many phthalates are suspected endocrine disrupters.
Use:	Phthalates may be used as plasticizers in polymers. Additives in adhesives, paints, lacquers, varnishes and solvents.
Comments:	Alternative plasticizers include citrates, sebacates, adipates, and phosphates etc. The terephthalate, DEHT and the cyclohexane DINCH are example of commercial available alternatives with low human and environmental toxicity. There are also plastics that do not require phthalates. However each application needs to be individually assessed for each best specific technical performance.
Legal background:	Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH) addresses the following legal limits: 0.1% by weight of the plasticized material in toys and childcare articles for DEHP, DBP and BBP. 0.1% by weight of the plasticized material in toys and childcare articles which can be placed in the mouth for DEHP, DBP, BBP, DINP, DIDP and DNOP. DEHP, DBP, , BBP and DIBP, DIHP, DHNUP, DMEP, 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear, DIPP, N-pentyl-isopentylphthalate, , and DPP, are listed in both annex XIV and in the Candidate List of Substances of Very High Concern for authorization of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Dihexyl phthalate, 1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear and, 1,2-benzenedicarboxylic acid, mixed and even numbered di-C6-10-alkyl esters with $\geq 0.3\%$ of dihexyl phthalate and DCHP are listed in the Candidate List of Substances of Very High Concern for authorisation of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). From 2020 , DIHP, DMEP, DIPP, DPP and DnHP will have a restriction limit of 1000 mg/kg in textiles (CMR fast track) according to Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). This limit applies to each substance individually or in combination with other phthalates that are classifies as CMR substances. All phthalates in toys and childcare articles for children aged 0-3 years are restricted (0.05%) in Denmark (BEK nr 855).

Test method: EN-ISO 14389
Test equipment: GC-MS, LC-MS

Detection limit: 100 mg/kg

7.2.18 Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE)

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value: Forbidden to be present in products.
Polybrominated biphenyls, CAS No 59536-65-1(mix)
Hexabromobiphenyl, CAS No 36355-01-8
Penta bromo diphenyl ether (PentaBDE), CAS No 32534-81-9, 60348-60-9
Octa bromo diphenyl ether (OctaBDE), CAS No 32536-52-0
Deca bromo diphenyl ether (DecaBDE), CAS No 1163-19-5
Tetrabromodiphenyl ether (TetraBDE), CAS No 5436-43-1
Heptabromodiphenyl ether (HeptaBDE), CAS No 207122-16-5, 446255-22-7
Hexabromodiphenyl ether (HexaBDE), CAS No 68631-49-2, 207122-15-4

Properties: Persistent, bioaccumulative and toxic. Halogenated organic additives in polymers may leach-out and have a negative impact on health and environment.
Halogen containing polymers may form highly corrosive substances and undefined range of halogenated substances that may be PBT or CMR when incinerated.

Use: Flame-retardant treatment of products where fire protection is required.

Comments: Avoid use. Replace bromo-organic chemical flame retardants with more environmentally sound alternatives, e.g., phosphorus- and/or nitrogen-based organic chemical flame retardants or non-chemical barrier-technologies such as blends of natural and synthetic fibers used in furniture and mattresses and high performance synthetic materials used in fire fighter uniforms and other protective clothing.
Textile goods for private use are basically never flame-retardant-treated. The only case when textile goods are treated with flame retardant is if the end customer orders this property. Usually it is done to satisfy regulatory requirements of fire protection.

Legal background: 10 mg/kg for several PBDEs as POPs (Commercial TetraBDE, PentaBDE, HexaBDE, HeptaBDE) and Hexabromobiphenyl are listed in the Stockholm Convention on Persistent Organic Pollutants (POPs) and banned by Regulation (EC) No 850/2004
Commercial OctaBDE (0,1 % by weight) and Polybrominated biphenyls (PBBs) are banned in Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). The legal limit for PBBs in textile articles with skin contact is detection limit.
OctaBDE is suggested as a POP according to the Stockholm Convention.

DecaBDE is listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Deca-BDE is banned in all products in Norway since 2008, legal limit 0.1 weight %.

PBBs are listed in the Rotterdam Convention

Chlorinated phosphate esters are, together with several other halogenated flame retardants, under scientific review in several countries and regions worldwide.

Test method:

EN ISO 17881-1 (textiles). Test equipment: GC-MS, LC-MS, GC-ECD

Detection limit:

There is no standard international detection limit as yet. For LC-MS 1.0 mg/kg can be expected.

7.2.19 PVC and PVCD

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:

Not allowed: Phase-out if used. Forbidden to be present in products.

Polyvinyl Chloride, CAS No 9002-86-2

Polyvinylidene Chloride, CAS No 9002-85-1

Properties:

Thermoplastic polymer, constructed of repeating vinyl groups having one hydrogen replaced by chloride

Use:

Widely used in clothing industry: fabric, fake leather, trims and packaging, etc.

Test method:

Beilstein and/or FTIR. (qualitative)

7.2.20 Siloxane

Material categories concerned: Textiles, Leather, Accessories, Packaging

Limit value:

0.1% by weight

CAS Nos:

556-67-2 Octamethylcyclotetrasiloxane (D4)

541-02-6 Decamethylcyclopentasiloxane (D5)

540-97-6 Dodecamethylcyclohexasiloxane (D6)

Properties:

Suspected of damaging fertility. Toxic to aquatic life with long lasting effects.

Use:

Used in washing and cleaning products, polishes and waxes, cosmetics and personal care products, textile treatment products and dyes, Paper and cardboard products. Precursors in the production of polymers.

Legal limit:

D4, D5 and D6 are listed in the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).

Test method:

No standardised test methods

Test equipment: GC-MS

7.2.21 TCEP

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:	<u>Forbidden to be present</u> in products. Tris(2-chlorethyl)phosphate (TCEP), CAS No 115-96-8 Tris (2,3 dibromopropyl) phosphate (TRIS), CAS No 126-72-7 Tris (1-aziridinyl)fosfin oxid (TEPA), CAS No 5455-55-1 Bis (2,3-dibromopropyl) phosphate (BDBPP), CAS No 5412-25-9
Properties:	Persistent, bioaccumulative and toxic. Halogenated organic additives in polymers may leach-out and have a negative impact on health and environment. Halogen containing polymers may form highly corrosive substances and undefined range of halogenated substances that may be PBT or CMR when incinerated.
Use:	Flame-retardant treatment of products (i.e. coated textiles) where fire protection is required. Plasticizers.
Comments:	Avoid. Replace chloro-organic chemical flame retardants with more environmentally sound alternatives, e.g., phosphorus- and/or nitrogen-based organic chemical flame retardants or non-chemical barrier-technologies such as blends of natural and synthetic fibers used in furniture and mattresses and high performance synthetic materials used in fire fighter uniforms and other protective clothing. Textile goods for private use are basically never flame-retardant-treated. The only case when textile goods are treated with flame retardant is if the end customer orders this property. Usually it is done to satisfy regulatory requirements of fire protection.
Legal background:	Legal limit: 0.1% by weight Tris(2-chlorethyl) phosphate (TCEP) and Tris (2,3 dibromopropyl) phosphate (TRIS) (entry 4), tris (1-aziridinyl)fosfin oxid (TEPA) is listed in the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Tris (1-aziridinyl)-phosphine oxide (TEPA / APO) Tris (2,3-dibromopropyl) phosphate (TRIS / TDBPP) and Bis (2,3-dibromopropyl) phosphate (BDBPP) are prohibited in detectable levels in textiles for consumers by Japan Law 112 for the Control of Household Products Containing Harmful Substances (10/01/1974)
Test method:	EN ISO 17881-2 Test equipment: GC-MS, LC-MS, GC-ECD
Detection limit:	There is no standard international detection limit as yet. For LC-MS 1.0 mg/kg can be expected.

7.2.22 Tri phenyl phosphate

Material categories concerned: Textiles

Limit Value:	<u>Forbidden to be present</u> in products. Legally required use needs prior approval by CSO Tri phenyl phosphate CAS No.: 115-86-6
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Properties:	Reproductive and developmental toxicity
Use:	plasticizer, flame-retardant
Legal background:	Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH); 2001/95/EC; 2009/48/EC
Test method:	EN 71-9/-10/-11
Detection limit:	0.03 mg/l

7.2.23 Tri (nx) cresyl phosphate (TCP)

Material categories concerned: Textiles

Limit value:	Not to be present in products Tri (m) cresyl phosphate CAS No.: 563-04-2 Tri (o) cresyl phosphate CAS No.: 78-30-8 Tri (p) cresyl phosphate CAS No.: 78-32-0
Properties:	Reproductive and developmental toxicity
Use:	Plasticizer
Legal background:	Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH); 2001/95/EC; 2009/48/EC
Test method:	EN 71-9/-10/-11
Detection limit:	0.03 mg/l

7.2.24 Tri xylyl phosphate

Material categories concerned: Textile, Leather, Accessories, Packaging

Limit value:	<u>Forbidden to be present</u> in products. Trixylyl phosphate, CAS No 25155-23-1
Properties:	Toxic for reproduction
Use:	Mainly used as functional fluid. Plasticizer of vinylite (a copolymer of vinyl chloride and vinyl acetate), cellulosic resins and natural and synthetic rubber. Plasticizer and flame retardant of PVC and PU.
Legal background:	Legal limit: 0.1% by weight Trixylyl phosphate (CAS No 25155-23-1) is listed in the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH).
Test method:	EN ISO 17881-2 (textiles) Test equipment: GC-MS, LC-MS, GC-ECD
Detection Limit:	Use limit the prescribed lab can offer.

Impregnations

7.2.25 Perfluorooctane carboxylic acid (PFOA) and related substances²

Material categories concerned: Textile, Leather, Accessories

Limit value:	<u>Forbidden to be present</u> in products or production. No contamination from other production lines or impurities during handling is accepted. PFOA, CAS No 335-67-1
Properties:	Per and Polyfluorocarbons are surfactants, stable, temperature-resistant and water- and grease-repellent substances. PFOA is used as an emulsifier in the production of fluoropolymers such as polytetrafluoroethylene (PTFE) etc.
Use:	Degradation products from additives in cleaning agents, fire extinguishing agents, metal plating and impregnation agents in leather and textiles.
Comments:	Various alternatives are available, e.g., fluorine free waxes and other new formulas (e.g., dendrimeric technologies) shall be used <u>but no silicones-based</u> (siloxanes) solutions.
Legal background:	Pentacosafluorotridecanoic acid (PFTTrDA), CAS No 72629-94-8, Tricosfluorododecanoic acid (PFDoA), CAS No 307-55-1, Henicosfluoroundecanoic acid (PFUnA), CAS No 2058-94-8, Heptacosfluorotetradecanoic acid (PFTA), CAS No 376-06-7, Pentadecafluorooctanoic acid (PFOA), CAS No 335-67-1, Ammonium pentadecafluorooctanoate (APFO), CAS No 3825-26-1 and Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts, CAS Nos. 3108-42-7, 335-76-2, 3830-45-3 are listed in the Candidate List of Substances of Very High Concern for authorization of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Restricted in Norway since June 2014 with the following legal limits: 0.001 % in chemical products 0.1 % (1000 ppm) in articles and parts there of 1 µg/m ² in textiles.
Test method:	No standardized test method available. Test Labs are prescribed. See also Appendix 7. Test equipment: LC-MS
Detection limit:	0.005 mg/kg.

7.2.26 Perfluorooctane sulfonate (PFOS and related substances)³

Material categories concerned: Textile, Leather, Accessories

Limit value:	<u>Forbidden to be present</u> in product or production. Legally, 1 µg/m ² applies to fluoro coated textiles and leather products 0.1% by weight applies to fluoro impregnated textiles and leather products. PFOS, CAS No 1763-23-1
Properties:	Polyfluorocarbons are surfactants, stable, temperature-resistant

² The total amount of PFOA and PFOA related substances count as PFOA, compare with PFOS.

³ The total amount of PFOS and PFOS related substances counted as PFOS, see test method EN/TS 15968:2009

- and water- and grease-repellent substances. PFOS is dangerous for the environment. PFOS hardly degrades (persistent) and is bio accumulative.
- Use:** Degradation product from additives in cleaning agents, ant pesticide bait, fire extinguishing agents, metal plating and impregnation agents in leather and textiles etc.
- Comments:** Avoid any C_n-technologies and use alternatives that are **not** based on long chain fluorotelomers (> C6) and long chain perfluorosulfonic compounds (> C5). Various alternatives are available, e.g., fluorine free waxes but not silicones-based solutions.
- Legal background:** Legal limit: 1 µg/m² applies to fluoro coated textiles and leather products 0.1% by weight applies to or part of articles. PFOS is listed in the Stockholm Convention on Persistent Organic Pollutants (POPs) and banned by Regulation (EC) No 850/2004.
- Test method:** EN/TS 15968:2009
Test equipment: LC-MS
- Detection limit:** 0.1 µg/m²

7.2.27 Fluorochemicals (PFCs)

Material categories concerned: Textile, Leather, Accessories, Packaging

- Limit value:** Forbidden to be present in products or production. GoreTex® Material excluded, unless otherwise advised by CSO.
- Use:** Impregnation agents in leather and textiles, fluoropolymere membranes.
- Comments:** Various alternatives are now available and new technologies are developed on a regular basis. Consider the use of the product and use alternatives; PFCs are not allowed except for GoreTex® materials. Phase-out from all materials including accessories required by 2020; forbidden of use in packaging
- Legal background:** Restrictions are currently developed under the REACH legislation
- Test method:** No standardized test method available. Following test labs are available; Nilu (Norsk institutt for luftforskning) Eurofins. See Appendix 7 for details.
Test equipment: SEM-EDS analyze
GC-MS
HPLC-MS
- Detection Limit:** Use the detections limits of the Labs prescribed for full range of PFCs and FTOHs

Biocidal Agents

Biocidal agents are both used as **process chemicals** to prohibit growth of microbes and **product related chemicals** to render biocidal property to the article. For hygienic reasons, we recommend, that biocidal agents, that include antibacterial, antifungal and insecticide agents shall not be used in textile and leather products.

7.2.28 Cu-HDO (Bis-(N-cyclohexyldiazeniumdioxy)-copper)

Material categories concerned: textiles, shoes, fungicide for transport (may be used instead of silica gel)

Limit value:	<u>Forbidden.</u> CAS No 312600-89-8
Properties:	Fungicide. Cu-HDO is classified as very toxic to aquatic organisms.
Use:	Fungicide.
Comments:	The alternative to biocidal agents during storage and transport is a cool and dry environment.
Legal background:	Cu-HDO is banned within PT9 (product type 9) that includes textiles, polymers and leather, according to the Biocidal Product Regulation (EU 528/2012).
Test method:	No standardised test method available. Test equipment: ICP-AES

7.2.29 Dimethylfumarate (DMFu)

Material categories concerned: Textile, Leather, Packaging

Limit value:	<u>Avoid use. Not to be present in products.</u> DMFu, CAS No 624-49-7
Properties:	Fungicide. DMFu is harmful to skin and a strongly allergenic substance.
Use:	To counteract fungus growth in clothes, shoes and other leather items. DMFu can e.g. be found in silica gel bags, but is also applied on the product both as a powder and in tablet form.
Comments:	The alternative to biocidal agents during storage and transport is a cool and dry environment. If use of biocidal agents is vital, folpet, chlorocresol, propiconazol, azoxystrobin and fludioxonil are approved for PT9 according to the Biocidal Product Regulation (EU 528/2012).
Legal background:	Legal limit: 0.00001 % by weight (0.1 mg/kg) Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). (Note: Previously banned according to EC directive 2001/95/EC (general product safety) from 1 May 2009 to 15 May 2012.)
Test method:	ISO/TS 16186. Test equipment: GC-MS, LC-MS.
Detection limit:	0.1 mg/kg.

7.2.30 Guanidine, N,N''-1,6-hexanediyldis(N'-cyano-),polymer with 1,6-heanediamine, hydrochloride (PHMB 1600; 1.8)

Material categories concerned: textiles, leather

Limit value:	<u>Forbidden to be present in products.</u> CAS Nos 27083-27-8; 32289-58-0
Properties:	PHMB is very toxic to aquatic life, is suspected of causing cancer and may cause an allergic skin reaction.
Use:	Biocide.
Comments:	The alternative to biocidal agents during storage and transport is a cool and dry environment.
Legal background:	PHMB 1600; 1.8 is banned within PT9 (product type 9) that includes textiles, polymers and leather, according to the Biocidal Product Regulation (EU 528/2012)
Test method:	No standardized test method available.

7.2.31 Pentachlorophenol (PCP) and all isomers of Tetrachlorophenols (TeCP)

Material categories concerned: Textile, Leather

Limit value:	<u>Do not use.</u> Not be present in products. CAS No 87-86-5, 131-52-2 (PCP)
Properties:	Organic compounds. Toxic and dangerous for the environment. On combustion, PCP emits dioxins, which are extremely toxic to humans.
Use:	Fungicide for preservative treatment of goods prior to storage and transport. Preservative in sizing agents and adhesives. Component in printing pastes (thickener).
Comments:	The alternative to biocidal agents during storage and transport is a cool and dry environment.
Legal background:	Legal limit: 0.1% by weight. Annex XVII of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). Pentachlorophenol (and its salts and esters) is banned in Norway in textiles and leather. Legal limit 5 ppm. (FOR-2004-06-01-922). Danish ban (BEK No. 854) on the import, export, sale and use of products containing 5 ppm or more of PCP and its salts and esters. Pentachlorophenol and its salts and esters, is banned in Germany in textiles and leather. Legal limit 5 ppm, (Chemikalien-Verbotsverordnung, Abschnitt 15) Pentachlorophenol is listed in the Rotterdam convention.
Test method:	ISO 17070 (leather) XP G 08-015 (French standard method for PCP in textiles) CEN/TR 14823 (wood) EN ISO 15320 (pulp, paper and board)
Detection limit:	0.05 mg/kg (for individual chlorophenols); detection limit wood: 25 mg/kg.

7.2.32 Permethrin

Material categories concerned: Textile, Leather

Limit value:	<u>Forbidden in Fenix products.</u> Should not be present in products. Exception: UN or NATO demands in specific products; formulas approved by EU/CAN/US/CAL (e.g., InsectShield® and HeiQ); always written approval from CSO needed. Permethrin, CAS No 52645-53-1
Properties:	Insecticide. Permethrin is like all synthetic pyrethroids a neurotoxin. It is considered more acutely toxic to children than to adults.
Use:	Permethrin is a biocide in textiles. It is used for home pest control, forestry, and in public health programs, including head lice control. It is also used for anti-mosquito/anti-tick treatment.
Legal background:	Permethrin is on the list of temporarily permitted existing biocides within PT9 (product type 9) that includes textiles, polymers and leather, according to the Biocidal Products Directive (98/8/EC).
Test method:	No standardised test method available. Test equipment: GC-MS, LC-MS.
Detection limit:	0.1 mg/kg.

7.2.33 Silver complexes in nano size (Ag +)

Material categories concerned: Textile, Leather

Limit value:	Not be present in products.
Properties:	Slight skin and eye irritant. Disturb denitrification processes in nature that is vital for provision of nutrition to plants. Dissolved (free) silver ions are very toxic to aquatic organisms.
Use:	Silver particle complexes in nano-size (< 100nm) are antibiotic additives in plastics and fibres.
Comments:	The alternative to antibacterial agents during use is satisfactory washing.
Legal background:	Legal limit: No legal limits for nano size silver complexes in textiles and leather. Metallic silver is on the list of temporarily permitted existing biocides within PT9 (product type 9) that includes textiles, polymers and leather, according to the Biocidal Products Directive (98/8/EC). Some silver products are registered in USA and the EU as biocidal products.
Test method:	No standardized test method available. Test equipment: ICP-MS, ICP-OES or AAS
Detection limit:	Total silver 0.1 mg/kg.

7.2.34 Tributyltin oxide compounds

Material categories concerned: Textile, Leather

Limit value:	Not be present in products. Tributyltin oxide (TBTO), CAS No 56-35-9 Tributyltin chloride, CAS No 1461-22-9 Tributyltin fluoride, CAS No 1983-10-4 Tributyltin methacrylate, CAS No 2155-70-6 Tributyltin benzoate, CAS No 4342-36-3 Tributyltin linoleate, CAS No 24124-25-2 Tributyltin naphthenate, CAS No 85409-17-2
Properties:	Antibacterial agent. Tributyltin compounds are different chemical substances that are toxic and dangerous for the environment. Bioaccumulative and persistent.
Use:	To counteract noxious odors in clothes and shoes. Preservative, fungicide and antifouling agent.
Comments:	The alternative to antibacterial agents during use is satisfactory washing.
Legal background:	Legal Limit: 0.1% by weight All tri-substituted organo stannic compounds such as tributyltin (TBT) are listed in annex XVII of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH). The seven TBT compounds listed above are also included in the Rotterdam convention. Tributyltin oxide (TBTO), CAS No 56-35-9 and Dibutyltin dichloride (DBTC), CAS No 683-18-n are listed on the Candidate List of Substances of Very High Concern for authorization of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council (REACH)
Test method:	No standardized test method for textile available. DIN EN ISO17353 (water and sediment) Test equipment: GC-MS.
Detection limit:	0.015 mg/kg.

7.2.35 Triclosan

Material categories concerned: Textile, Leather

Limit value:	<u>Forbidden to be present</u> in products. Triclosan, CAS No 3380-34-5
Properties:	Antibacterial agent. Triclosan is classified as a probable human carcinogen and bio accumulative.
Use:	Anti-bacterial agent in clothes and other commodities.
Comments:	The alternative to antibacterial agents during use is satisfactory washing.
Legal background:	Triclosan is on the list of temporarily permitted existing biocides within PT9 (product type 9) that includes textiles, polymers and leather, according to the Biocidal Products Directive (98/8/EC).
Test method:	No standardized test method available. Test equipment: GC-MS, LC-MS.
Detection limit:	0.01 mg/kg for both leather and textiles.

7.2.36 DTTB (4,6-dichloro-7-(2,4,5-trichlorophenoxy)-2-trifluoromethylbenzimidazole) and Dieldrin

Material categories concerned: Textile

Limit value: Do not use. 30 ppm in textiles for consumers
DTTB, CAS No 63405-99-2, Dieldrin, CAS No 60-57-1

Properties: Biocide.

Legal background: Japan Law 112 for the Control of Household Products Containing Harmful Substances (10/01/1974)

8. Updated List: Chemicals Restricted and Forbidden under the REACH Legislation

The European and International Chemicals Registration and restriction legislation is a developing and hence dynamic process. Thus far, not even 30 percent of all chemicals have been screened and categorized. Subsequently, Fenix Outdoor needs to regularly update and revise its Restricted Substances List. In light of the aforementioned precautionary approach, we expect all suppliers and business partners to collaborate closely with us and replace critical and potentially hazardous chemicals and those which may have a negative impact on the environment (water bodies, soil, air and living beings) as early in a process as possible. Under no circumstances shall restricted or forbidden chemicals occur in our finished products. The following table gives an overview on recently added chemicals to the REACH List (*List of Substances of Very High Concern for authorization of the Regulation of the European Parliament and of the Council*). We expect our partners to ensure that those chemicals do not form part of the processes needed to create and deliver our products, nor that it occurs in the finished products.

Substance	Relevance	EC number	CAS No	SVHC property	Potential uses
Formamide	Packaging	200-842-0	75-12-7	Toxic for reproduction (Article 57 c)	Mainly used as an intermediate. Minor uses as solvent, as reagent chemical (in the pharmaceutical industry) and as laboratory chemical. The substance seems further to be used in the agrochemical industry and as a plasticizer.
TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	Packaging	219-514-3	2451-62-9	Mutagenic (Article 57b)	Mainly used as a hardener in resins and coatings; also used in inks for the printed circuit board industry, electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilizers for plastics.
β -TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	Packaging	423-400-0	59653-74-6	Mutagenic (Article 57b)	Mainly used as a hardener in resins and coatings; also used in inks for the printed circuit board industry, electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilizers for plastics.
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	Leather, textiles and packaging	202-027-5	90-94-8	Carcinogenic (Article 57a)	Intermediate in the manufacture of triphenylmethane dyes

Substance	Relevance	EC number	CAS No	SVHC property	Potential uses
					and other substances. Further potential uses include as additive (photosensitiser) in dyes and pigments, in dry film products, as a process chemical in the production of electronic circuit boards, in research and development applications.
bis(dimethylamino)-4''-(methylamino)trityl alcohol	Process chemical Textiles and packaging	209-218-2	561-41-1	Carcinogenic (Article 57a)	Used in the production of writing inks and potentially in the production of other inks, as well as for dyeing of a variety of materials.
Cadmium fluoride	Accessories	232-222-0	7790-79-6	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Used in the production of metallic alloys
Cadmium sulphate	Accessories	233-331-6	10124-36-4,31119-53-6	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Used as pigment (e.g. glass and plastic). Its semiconducting property together with chemical/physical properties makes cadmiumsulphide useful for photoelectronic

9. Documentation*

For replicability of specifications and in light of the REACH Regulation, the following documentation requirements apply:

Records	Author	Archived At	Minimum Retention Period
Initial Specifications	Purchase & Prod. Dept.	Product Resp.	Statutory (evtl. centrally archived)
Approval documents	Head of Production	Head of Production	Statutory
Test Reports	Test Lab	1 Copy at Facility; 1 Copy Head of Production	5 years
Cross-testing Reports	Test Lab	Head CSR/Prod.	Statutory
REACH Requests	Var.	Sales Entity/ Head CSR/Prod.	Statutory
Product and Material Samples	Production	Production/QA Team	Archive
Internal relevant documents	Product Resp.	Head Office	Statutory
Complaints	Var.	Head CSR/Prod.	Statutory
Internal Complaints Handling Reports	Var.	Head CSR/ QA	Statutory
Inspection reports	Inspection team	Head CSR/Prod.	Archive
Compliance Reports	Compliance Office	CCO	5 years

List of Abbreviation

CCO = Chief Compliance Officer's Office

CSR = Corporate Social Responsibility

Dept. = Department

Lab = Laboratory

Prod. = Product(ion)

QA = Quality Assurance Team

Resp. = Responsible

Var. = various authors/actors

NOTE: In some entities specific roles mentioned are not assigned. In that case the given alternative or most plausible solution should be sought.

* Additional resources may be required to implement the documentary requirements

10. Liability

The supplier is required to follow – in all incidences – the laws and regulations of the European Union and their member states. We request to pay special attention to the following points:

10.1 Chemicals

10.1.1 Forbidden Chemicals in products

The requirements applies to all products that defines as merchandise according to the European Parliament and the Councils ordinance 1907/2006 (REACH), article 3.3. It also applied to the definition of “product” as rules by the European Supreme Court in April 2015.

The supplier is responsible that all deliveries to any Fenix Outdoor entity do not contain any products with chemicals which use is limited according to the European parliament and the councils ordinance 1907/2006 (REACH), Appendix XVII.

This includes any component of the product supplied by any local supplier/subcontractor.

10.1.2 Chemicals requiring permission at the European Chemical Agency (ECHA)

The requirements apply to all products that are defined as merchandise in accordance the European Parliament and the Councils ordinance 1907/2006 (REACH), article 3.3.

The supplier is liable according to law to inform the respective Fenix Outdoor entity about the presence of chemicals which are listed in the *Candidate List of Substances of Very High Concern for Authorization*, which is to be found on the website of the European Chemicals Agency, (<http://echa.europa.eu/>), together with chemicals that can be used for different intended uses and over chemicals listed in the European parliament and the council ordinance 1907/2006 (REACH), Appendix XIV whose intended use requires the permission of ECHA.

Every partner ensures that all deliveries do not contain products with chemicals listed in the *Candidate List of Substances of Very High Concern for Authorization* and in the European parliament and the councils ordinance 1907/2006 (REACH), Appendix XIV.

10.1.3 Stockholm Convention on Persistent Organic Pollutants (POPs)

The Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs), addressed as the *Stockholm Convention, Regulation (EC) 850/2004 and EU Regulation No 519/2012 in EU*.

10.1.4 Biocidal Product Regulation

The Biocidal Product Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products, which are used to protect humans, animals, materials or articles against harmful organisms, like pests or bacteria, by the action of the active substances contained in the biocidal product.

The Biocidal Products Regulation (BPR) also sets rules for the use of articles treated with, or intentionally incorporating, one or more biocidal products.

10.1.5 Chemicals classified as dangerous

The supplier ensures that chemicals classified as dangerous in accordance to the European parliament and the councils ordinance 1272/2008 (*CLP regulations for classification, labeling and packaging of substances*), are not used in process of production or added as an additive in

products. This requirement applies only if the chemicals not classified as dangerous is available on the market and whose technical usability is equal or better than the chemicals classified as dangerous is used.

Chemicals classified as CMR-chemicals, i.e. carcinogenic, mutagenic, toxic to reproduction, endocrine toxic (endocrine disruption), allergenic or classified as PBT or/and vPvB- chemicals, i.e. persistent, bio accumulative and eco toxic according to definitions in the European Parliament and the Councils ordinance 1907/2006 (REACH), article 57.

If chemicals classified as dangerous are used in production process or as an additive in products the supplier shall in the quotation apply relative safety sheet in accordance to the European Parliament and the Councils ordinance 1907/2006 (REACH), Appendix II.

The supplier is obliged to inform about all chemical substances used in the production process or as an additive in the product as a separate appendix to the quotation. In case of a substance used in process or present in product of a forbidden quantity orders will not be signed.

In case, products are intended to be sold in the US markets, the supplier provides Fenix Outdoor with the appropriate and necessary labelling required by California Proposition 65.

The supplier performs tests and analyses on his own expense to ensure that specifications and chemical laws and restrictions are fulfilled and that all products delivered to the respective Fenix Outdoor entity are in accordance with the specifications, order and quotation agreements.

Fenix Outdoor reserves the right to perform unannounced test to cross-test delivered products in order to ensure, all requirements are met.

If needed and from time-to-time, Fenix Outdoor or any of its entities may conduct random checks of suppliers at any time during the contract period performed by own staff or through a 3rd party – announced or unannounced.

10.1.6 Sanctions

In case that tests, on-site visits, cross-test and controls or audits performed by us or a 3rd party show forbidden or too high concentrations of restricted substances according to

- a. Appendix XIV to REACH (SVHC-substances subject to authorization) and associated candidate list
- b. Appendix XVII to REACH (Restrictions) OR/AND
- c. Fenix Outdoor International's Chemical Guideline or the specific Guideline of any Fenix Outdoor entity

OR

Does violate legal labelling and information disclosure requirements,

We reserve the right to hold payment fully or partly until the delivered goods have been corrected, removed or taken-back by the supplier and goods, fulfilling our specifications and which have been approved are delivered.

In case of the violation of any of the above mentioned elements of our guideline, we reserve the full right to take other sanctions arising from the contract / or under other contractual and legal

frameworks and agreements. This entails, *inter alia*, the right to receive compensation in the form of claimed damages equivalent to the so-called positive contractual interest for both the direct and the indirect damages, losses of sales, penalties by clients for non- or delayed deliveries and claims by authorities, fees, fines and other arising from third party demands as a result of the delivery of forbidden, unauthorized or harmful products or substances therein.

12. Final Provisions

The provisions of this Guideline are binding for all business partners. In case of a dispute on test results or in case of findings that would constitute a violation of this Guideline, be it by third parties, authorities or internal investigations, both parties will strive to resolve the issue in the spirit of partnership and cooperation. This holds also true in case of publications issued by authorities, consumer groups or special-interest groups.

This Chemical Guideline was last revised on 08 August 2018. The next review is scheduled for February 2019 or on an ad hoc basis should legal changes require us to do so.

13. Appendix

13.1 Appendix 1 List of 20 allergenic disperse dyestuffs and Navy Blue (banned mordant dye)

C.I. Name	CAS No
C.I. Disperse Yellow 1	119-15-3
C.I. Disperse Blue 35*	12222-75-2
C.I. Disperse Blue 102	12222-97-8
C.I. Disperse Blue 106*	12223-01-7
	6816-81-4
C.I. Disperse Yellow 39	12236-29-2
C.I. Disperse Orange 37/59/76*	13301-61-6
C.I. Disperse Brown 1	23355-64-8
C.I. Disperse Blue 3	2475-46-9
C.I. Disperse Orange 1	2581-69-3
C.I. Disperse Yellow 3*	2832-40-8
C.I. Disperse Red 11	2872-48-2
C.I. Disperse Red 1*	2872-52-8
C.I. Disperse Red 17	3179-89-3
C.I. Disperse Blue 7	3179-90-6
C.I. Disperse Blue 26	3860-63-7
	100357-99-1
	13324-23-7
C.I. Disperse Yellow 49	54824-37-2
	12239-15-5
C.I. Disperse Blue 124*	61951-51-7
C.I. Disperse Yellow 9	6373-73-5
C.I. Disperse Orange 3*	730-40-5
Navy Blue	405-665-4 (EC #) BANNED
C.I. Disperse Blue 1*	2475-45-8

All chemicals marked with * are strictly forbidden and banned in Germany

13.2 Appendix 2 List of 24 banned arylamines

Name	CAS No
4,4-Methylene-bis[2-chloro-aniline]	101-14-4
4,4-Methylenedianiline	101-77-9
4,4'-oxydianiline	101-80-4*
4-chloroaniline	106-47-8
o-Dianisidine	119-90-4
4,4'-bi-o-toluidine	119-93-7
p-Cresidine	120-71-8 *
2,4,5-trimethylaniline	137-17-7
4,4'-thiodianiline	139-65-1
4-Aminoazobenzene	60-09-3
4-methoxy-m-phenylenediamine	615-05-4
4,4-Methylenedi-o-toluidine	838-88-0 *
2,6-xylidine	87-62-7
o-Anisidine	90-04-0 *
2-Naphthylamine	91-59-8
3,3-Dichlorobenzidine	91-94-1
Biphenyl-4-ylamine	92-67-1 *
Benzidine	92-87-5
o-Toluidine	95-53-4 *
2,4-xylidine	95-68-1
4-Chloro-o-toluidine	95-69-2
4-methyl-m-phenylenediamine	95-80-7 *
o-Aminoazotoluene	97-56-3 *
5-Nitro-o-toluidine	99-55-8
4-chloro-o-toluidinium chloride	3165-93-3**
2-Naphthylammoniumacetate	553-00-4**
4-methoxy-m-phenylene diammonium sulphate;	
2,4-diaminoanisole sulphate	39156-41-7**
2,4,5-trimethylaniline hydrochloride	21436-97-5**

Substances marked with * fall in the REACH category “substances of very high concern” – SVHC; ** are CMR fast track substances

13.3 Appendix 3 List of 15 carcinogenic dye stuffs

C.I. Name	CAS No
C.I. Direct Brown 95	16071-86-6
C.I. Direct Black 38	1937-37-7
C.I. Disperse Blue 1	2475-45-8 **
C.I. Direct Blue 6	2602-46-2
C.I. Acid Red 26	3761-53-3
C.I. Basic Red 9	569-61-9 **
C.I. Direct Red 28	573-58-0
C.I. Basic Violet 14	632-99-5
C.I. Disperse Orange 11	82-28-0
C.I. Disperse Orange 149	85136-74-9
C.I. Solvent Blue 4	6786-83-0*
C.I. Basic Blue 26	2580-56-5*
C.I. Basic Violet 3	548-62-9* , **
Acid Violet 49	1694-09-3
Basic Violet 1	8004-87-3
C.I. Pigment Yellow 83	5567-15-7
Michler's base	101-61-1*
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	561-41-1*
C.I. Disperse Yellow 3	2832-40-8

Substances marked with * fall in the REACH category "substances of very high concern" – SVHC; ** are CMR Fast Track substances

13.4 Appendix 4 List of DBTs

Constituent	CAS No	No of carbons
R = oxide (DBTO)	818-08-6	0
R = acetate	1067-33-0	2
R = butoxide	3349-36-8	4
R = methylmaleate	15546-11-9	5
R = octanoate	4731-77-5	8
R = isooctanoate	85702-74-5	8
R = (monobutyl)maleate	15546-16-4	8
R = 2-ethylhexanoate	2781-10-4	8
R = laurate	77-58-7	12
R = palmitate	13323-63-2	16
R = stearate	5847-55-2	18
R = oleate	13323-62-1	18
R = linoleate	85391-79-3	18
R = linolenate	95873-60-2	18

13.5 Appendix 5 List of Chromium (VI) SVHC compounds

Name	CAS No
Ammonium dichromate	7789-09-05*
Potassium chromate	7789-00-6*
Potassium dichromate	7778-50-9*
Sodium chromate	7775-11-03*
Sodium dichromate dehydrate	7789-12-0, 10588-01-9*
Strontium chromate	7789-06-2
Chromium trioxide	1333-82-0*
Chromic acid	7738-94-5*
Dichromic acid	13530-68-2*
Lead chromate	7758-97-6*
Lead sulfochromate	1344-37-2
Lead chromate molybdate sulphate	12656-85-8*
Dichromium tris(chromate)	24613-89-6
Potassium hydroxyoctaoxidizin- catedichromate	11103-86-9
Pentazinc chromate octahydroxide	49663-84-5

Substances, marked with an * are also listed in Annex XIV in addition to the candidate list

13.6 Appendix 6 List of SVHC Lead compounds

Name	CAS No
Lead chromate	7758-97-6
Lead sulfochromate	1344-37-2
Lead chromate molybdate sulphate	12656-85-8
Lead dipicrate	6477-64-1
Lead styphnate	15245-44-0
Lead diazide	13424-46-9
Lead hydrogen arsenate	7784-40-9
Lead monoxide (Lead oxide)	1317-36-8
Orange lead (Lead tetroxide)	1314-41-6
Lead bis(tetrafluoroborate)	13814-96-5
Trilead bis(carbonate)dihydroxide	1319-46-6
Lead titanium trioxide	12060-00-3
Lead titanium zirconium oxide	12626-81-2
Lead(II) bis(methanesulfonate)	17570-76-2
Silicic acid, lead salt	11120-22-2
Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), Leaddoped	68784-75-8
Acetic acid, lead salt, basic	51404-69-4
Lead oxide sulfate	12036-76-9
[Phthalato(2-)]dioxotrilead	69011-06-9
Dioxobis(stearato)trilead	12578-12-0
Fatty acids, C16-18, lead salts	91031-62-8
Lead cyanamide	20837-86-9
Lead dinitrate	10099-74-8
Pentalead tetraoxide sulphate	12065-90-6
Pyrochlore, antimony lead yellow	8012-00-8
Sulfurous acid, lead salt, dibasic	62229-08-7
Tetraethyllead	78-00-2
Tetralead trioxide sulphate	12202-17-4
Trilead dioxide phosphonate	12141-20-7
Lead di(acetate)	301-04-2

13.7 Appendix 7 Test methods for flourochemicals (PFC's)

Laboratory: Norwegian Institute for Air Research (NILU)

FRAM Centre

9296 Tromsø / Norway

Sample preparation: Extraction with ethyl acetate for sulphonamides, sulfonamidoethanols and fluorotelomer alcohols. Extraction with methanol for carboxylates and sulfonates

Analytical method: Gas chromatograph coupled to mass spectrometer (GC-MS) for ethyl acetate extracts. Ultra High performance liquid chromatograph coupled to mass spectrometer (UPLC-MS/MS) for methanol extracts. Quantification was performed using an internal standard method.

Use of blank extraction experiments and determination of recovery rates for all internal standards.

Analytes Abbreviation	Full name	Detection method
4:2 FTOH	4:2 Fluorotelomer alcohol	GC-MS
6:2 FTOH	6:2 Fluorotelomer alcohol	GC-MS
8:2 FTOH	8:2 Fluorotelomer alcohol	GC-MS
10:2 FTOH	10:2 Fluorotelomer alcohol	GC-MS
6:2 FTS	6:2 Fluorotelomer sulfonate	HPLC-MS
8:2 FTS	8:2 Fluorotelomer sulfonate	HPLC-MS
PFBS	Perfluorobutane sulfonate	HPLC-MS
PFHxS	Perfluorohexane sulfonate	HPLC-MS
PFOS	Perfluorooctane sulfonate	HPLC-MS
PFDCS	Perfluorodecane sulfonate	HPLC-MS
PFBA	Perfluorobutanoate	HPLC-MS
PFPA	Perfluoropentanoate	HPLC-MS
PFHxA	Perfluorohexanoate	HPLC-MS
PFHpA	Perfluoroheptanoate	HPLC-MS
PFOA	Perfluorooctanoate	HPLC-MS
PFNA	Perfluorononanoate	HPLC-MS
PFDCa	Perfluorodecanoate	HPLC-MS
PFUnA	Perfluoroundecanoate	HPLC-MS
PFDoA	Perfluorododecanoate	HPLC-MS
PFTra	Perfluorotridecanoate	HPLC-MS
PFTeA	Perfluorotetradecanoate	HPLC-MS
PFOSA	Perfluorooctane sulfonamide	HPLC-MS
N-Me-FOSA	N-Methyl-heptadecafluorooctane sulfonamide	GC-MS
N-Et-FOSA	N-Ethyl-heptadecafluorooctane sulfonamide	GC-MS
N-Me-FOSE	N-Methyl-heptadecafluorooctane sulfonamidoethanol	GC-MS
N-Et-FOSE	N-Ethyl-heptadecafluorooctane sulfonamidoethanol	GC-MS

Laboratory: Eurofins GfA Lab Service GmbH in Hamburg, Germany.

Method: GF016 PFC (22) ~ internal method, LC-MS/MS

Detectables/Analytes	Abbreviation
Perfluorohexane sulfonate	PFHxS
Perfluoroheptane sulfonate	PFHpS
Perfluorooctane sulfonate	PFOS
Perfluorodecane sulfonate	PFDS
Perfluorobutane carboxylate	PFBA
Perfluoropentane carboxylate	PFPA
Perfluorohexane carboxylate	PFHxA
Perfluoroheptane carboxylate	PFHpA
Perfluorooctane carboxylate	PFOA
Perfluorononane carboxylate	PFNA
Perfluorodecane carboxylate	PFDA
Perfluoroundecane carboxylate	PFUnA
Perfluorododecane carboxylate	PFDoA
Perfluorotridecane carboxylate	PFTTrA
Perfluorotetradecane carboxylate	PFTTeA
Perfluorooctane sulfonamide	PFOSA
Perfluoro-3,7-dimethyloctane carboxylate	PF-3,7-DMOA
7H-Dodecanefluoroheptane carboxylate	HPFHpA
2H,2H-Perfluorodecane carboxylate	H2PFDA
1H,1H,2H,2H-Perfluorooctane sulfonate	H4PFOS; 6:2 FTS
2H,2H,3H,3H-Perfluoroundecane carboxylate	H4PFUnA

13.8 Appendix 8 – Special Requirements and Information (LEGAL ONLY)

13.8.1 Minimum Requirements for Articles that get in Contact with Foodstuff

A: Hazardous Substances		Metal compounds Ceramic / enamel / porcelain	Plastic components / Rubber	Silicon	Wood	Coatings	Varnish / Painting	Paper	Natural fibres	Man-made fibres and blends	Strictest European Legal Limit	Country of Legal Regulation
Mandatory Test Parameters	1. Global migration per simulant food										60 mg/kg	EU
	1.1 Fillable articles: per simulant food		X	X							10 mg/dm ²	EU
	1.2 Non-fillable articles: per article surface		X	X								
	2. Lead, Cadmium, Zinc, Antimony and Barium release per simulant food											
	2.1 Lead release / non-fillable articles	X					X				0,8 mg/dm ²	EU
	2.2 Lead release / fillable articles < 3 l	X					X				4,0 mg/l (2,0 mg/l)	EU (PL)
	2.3 Lead release / fillable articles > 3 l	X					X				1,5 mg/l (1,0 mg/l)	EU (PL)
	2.4 Lead release Drinking seam	X					X				2,0 mg/article	DE, PL
	2.5 Cadmium release / non-fillable articles	X					X				0,07 mg/dm ²	EU
	2.6 Cadmium release / fillable articles < 3 l	X					X				0,3 mg/l	EU
	2.7 Cadmium release / fillable articles > 3 l	X					X				0,1 mg/l	EU
	2.8 Cadmium release Drinking seam	X					X				0,2 mg/article	DE, PL
	2.9 Zinc release / fillable articles < 1 L	X					X				3 mg/article	AT
	2.10 Zinc release / fillable articles > 1 L	X					X				3 mg/l	AT
	2.11 Antimony release / fillable articles < 1 L	X					X				1 mg/article	AT
	2.12 Antimony release / fillable articles > 1 L	X					X				1 mg/l	AT
	2.13 Barium release / fillable articles < 1 L	X					X				1 mg/article	AT
2.14 Barium release / fillable articles > 1 L	X					X				1 mg/l	AT	
3. Heavy metal migration in simulant food												
Fillable articles per simulant food												
3.1 Aluminum	X					X					10 mg/l	CH
3.2 Antimony	X					X					0,005 mg/l	DE
3.3 Arsenic	X					X					0,01 mg/l	DE
3.4 Barium	X					X					1 mg/l	DE
3.5 Lead	X					X					0,01 mg/l	DE
3.6 Chromium	X					X					0,05 mg/l	DE
3.7 Cadmium	X					X					0,003 mg/l	DE
3.8 Copper	X					X					1 mg/l	DE
3.9 Manganese	X					X					0,5 mg/l	DE
3.10 Nickel	X					X					0,02 mg/l	DE
3.11 Mercury	X					X					0,001 mg/l	DE
3.12 Selenium	X					X					0,01 mg/l	DE
Non-fillable articles: per article surface												
3.13 Lead	X					X					0,01 mg/dm ²	DE, FI
3.14 Cadmium	X					X					0,005mg/dm ²	DE, FI
3.15 Chromium	X					X					0,4 mg/dm ²	DE, FI
3.16 Nickel	X					X					0,1 mg/dm ²	DE, FI
4. Heavy Metals, total content												
4.1 Lead			X			X					100 mg/kg	DK
4.2 Cadmium			X			X					100 mg/kg	EU
5. Volatile Substances				X							0,5%	EU
6. Chlorinated phenols												
6.1 Pentachlorophenol PCP					X			X	X		0,5 mg/kg	DE, AT
6.2 Pentachlorophenol PCP in paper					X			X	X		0,15 mg/kg	DE
6.3 Tetrachlorophenols total TeCP					X			X	X		0,5 mg/kg	CH
7. Plasticizers: Phthalates												
7.1 DEHP, DBP, BBP, DINP, DIDP, DNOP			X								0,1%	
8. Polycyclic aromatic hydrocarbons PAH			X			X					0,2 mg/kg	
9. Dimethylfumarate					X						0,1 mg/kg	EU
10. Perfluorinated Tensides												
10.1 Perfluorooctane Sulfonate PFOS						X					0,1%	EU
10.2 Perfluorooctane Acid PFOA						X					0,1%	
11. Organotin compounds			X			X	X			X	5 mg/kg	CH
12. Aromatic amines in plastics			X			X					0,01 mg/kg	EU
13. Azo dyes / Cleavable arylamines								X	X		30 mg/kg	EU
14. Disperse dyestuffs, allergenic									X		5 mg/l	DE
15. Formaldehyde			X			X					15 mg/kg	EU
16. Vinylchloride			X								0,01 mg/kg	EU
17. Further residual chemicals												
17.1 Triclosan			X			X					not detectable	DE
17.2 Bisphenol A			X			X					not detectable	DE
17.3 Heavy Metals, extractable in hydrochloric acid	X	X	X	X	X	X	X	X	X	X	see attachment	EU

B: Safety requirements for baby articles		Limit	Leg. Reg.
Mand.	18. Pull-off force of buttons and small parts		
	18.1 Parts > 6 mm	Requirements acc. to DIN EN 71-1 have to be met.	EU
	18.2 Parts ≤ 6 mm		

C: Quality		Limit	Leg. Reg.
A Mand.	19. Sensoric properties		
	19.1 Odour	Grade 2	EU
	19.2 Taste	Grade 2	EU
A	20. Fastness to saliva and perspiration	Grade 5	DE, SK

D: Hazardous Substances in Packaging		Limit	Leg. Reg.
M	21. Sum (Lead, Cadmium, Mercury, Chromium VI)	100 mg/kg	EU
	22. Dimethylfumarate in Silica	0,1 mg/kg	EU
A	23. Cobalt dichloride in Silica	no use	

E: REACH	
REACH	In case of contents > 0,1% per article weight substances of very high concern (SVHC) from the REACH candidate list, the supplier is legally obligated to transmit the information (Regulation (EC) 1907/2006 Art. 33 and Annex XIV). SVHC-Substances, see http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp .

F: Testing Procedure and Remarks	
	The limit values for metal migration are based on the German Regulation for mineral water, MinTafWV. Regarding the metal content specific regulations are valid in Switzerland acc. to Directive 817.023.21: The metals lead, cadmium and zinc or their alloys must not be used for articles with food contact.
[3]	Further copper and its alloys have to be finished with durable coatings. Articles of tin have to consist of at least 90% of tin and may contain at most 0,5 % lead and 0,05 % cadmium. The requirement for aluminum refers to fruit juice, limit is valid in Switzerland. In Italy only specific stainless steel is allowed, which is indicated by a special steel key or which is defined by the composition.
[10]	Perfluorinated tensides have to be tested in case of water or dirt-repellent coatings only.
[11]	Organozinn compounds are specifically regulated acc. to the Swiss Directive 817.023.21. The limit value of 5 mg/kg for all organotin compounds includes these regulation total.
[14]	Disperse dyes, allergenic, need to be tested in materials with skin contact only.
[16]	Vinylchlorid needs to be tested in Polyvinylchloride PVC only.
[17]	Heavy Metals, extractable in hydrochloric acid needs to be tested in baby articles only.

G: Country of Legal Regulation	
	The column in table A indicates in which country a regulation exists. The details, e.g. the limit for each country, are given in the attachment. The limit value is the strictest value of all European countries.

H: Definition of Product Group	
	The requirement profile refers to articles with food contact aside baby articles e.g. baby bottles, baby dishes, soother and soother holder. These products have to meet further requirements.

I: Hazardous Substances and Product Safety	
	Each article including the packaging has to achieve all requirements given under A-H. The supplier assures that the delivered article meets all requirements under Regulation (EC) 1907/2006 and Directive 2001/95/EC. Plastics with food contact have to fulfill the Regulation (EC) No. 10/2011; in this regulation a positive list of substances, that are allowed for the production is given. Some of them are limited by migration limit values. Ceramic with food contact has to comply with directive 84/500/EC.

J: Declaration of Conformity	
	By way of statement of conformity to ISO/IEC 17050 the supplier commits himself to deliver merchandise in conformity with the respective test sample. For all materials made of plastic, ceramic and regenerated cellulose film with food contact must be add declaration of conformity at all marketing stages other than at the retail.

K: Address Data	
	The address data of the EU-distributor have to be placed on the product, see Directive 2001/95/EC.

1. Global Migration

Test Method: § 64 LFGB B 80.30-1/-2/-3
 EU Requirement (Plastic): Regulation (EC) No 10/2011
 DE Requirement (Plastic and Rubber): BedGgStV; BfR Recommendation XXI
 CH Requirement (Silicon): Switzerland: Directive 817.023.21

2. Lead, Cadmium, Zinc, Antimony and Barium Release

Test Method: § 64 LFGB B 80.03-1/-2/-3/-4
 EU Requirement: Directive 84/500/EEC
 DE Requirement: BedGgStV
 AT Requirement: Keramik-Verordnung
 PL Requirement: PN-B 13210 Wyroby szklane i ceramiczne przeznaczone do kontaktu z żywnością - Dopuszczalne ilości uwalnianego ołowiu i kadmu

Substance	CAS No.
Lead	7439-92-1
Cadmium	7440-43-9
Zinc	7440-66-6
Antimony	7440-36-0
Barium	7440-39-3

3. Metal Composition

Test Method (Metal composition/steel key): X-ray fluorescence analysis RFA IEC 62321
 Test Method (Migration in simulant food): § 64 LFGB B 80.30-1/-2/-3
 EU Requirement (Metal Release): Regulation (EC) No 1935/2004
 CH Requirement (Aluminum): Switzerland: Directive 817.023.21
 DE Requirement: LFGB § 31; fillable articles: limit values for metal migration acc. to mineral water, MinTafWW; non-fillable articles: Hausch, Deutsche Lebensmittel-Rundschau 03/1996: Metalllässigkeit von Bestecken aus nichtrostenden Stählen
 IT Requirement (stainless steel): Notification No 2009/202/I, Technical Regulations Information System, TRIS, 7 April 2009: Only specific stainless steel is allowed, which is indicated by a special steel key or which is defined by the composition
 FI Requirement: Kuppa- ja teollisuusministeriön päätös elintarvikkeen kanssa kosketukseen joutuvista tarvikkeista liukenevista raskasmetalleista (268/92) 20/03/1992; Lead: 0,5 mg/dm², Chromium: 2 mg/dm², Cadmium: 0,1 mg/dm², Nickel: 2 mg/dm²:

Substance	CAS No.
Aluminum	7429-90-5
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Lead	7439-92-1
Chromium	7440-47-3
Cadmium	7440-43-9
Copper	7440-50-8
Manganese	7439-96-5
Nickel	7440-02-0
Mercury	7439-97-6
Selen	7782-49-2

4. Heavy Metals, Total Content

Test Method: DIN EN ISO 17294-2 / EPA 1620 / DIN EN 1122
 EU Requirement (Cadmium): Regulation (EC) No 1907/2006 Annex XVII no use of cadmium in wood preservatives; limit for cadmium in paints and varnishes: 0,1%; limit for cadmium in synthetic components (all commodities)
 DK Requirement (Lead): Statutory Order No. 1082 of 13 September 2007 valid for consumer goods; limit for lead in synthetics: 100 mg/kg

Substance	CAS No.
Lead	7439-92-1
Cadmium	7440-43-9

5. Volatile Substances

Test Method: Recommendation BfR No XV (Federal Institute of Risk Assessment)
 DE Requirement: Recommendation BfR No XV (Federal Institute of Risk Assessment)

6. Chlorinated Phenols

Test Method: EN ISO 17070; EPA 3545A
 EU Requirement: Regulation (EC) No 1907/2006 Annex XVII; PCP limit for preparations: 0,1 %; no limit for consumer
 AT Requirement: ChemVerbotsV 2003 limit for PCP in preparations: 0,1 %; limit for PCP in consumer goods: 5 mg/kg
 CH Requirement: ChemRRV 814.81 no use of PCP and TeCP, Swiss authorities accept articles up to PCP/TeCP-contents of 5 mg/kg
 DE Requirement: ChemVerbotsV limit for PCP in preparations: 0,1 %; limit for PCP in consumer goods: 5 mg/kg; LFGB, Recommendation of BfR No 018/2007 (Federal Institute for Risk Assessment): limit for PCP in paper with food contact: 0,15 mg/kg.

Substance	CAS No.
Pentachlorophenol	87-86-5
2,3,4,5-Tetrachlorophenol	4901-51-3
2,3,4,6-Tetrachlorophenol	58-90-2
2,3,5,6-Tetrachlorophenol	935-95-5

7. Plasticizers: Phthalates

Test Method: DIN EN 15777; DIN EN 14372; EPA M 1625
 EU Requirement: Regulation (EC) No 1907/2006 Annex XVII, valid for toys and baby products only; limits: sum (DEHP, BBP, DBP) = 0,1% for all kinds of toys and baby products, sum (DNOP, DIDP, DINP) = 0,1% refers to parts that can be taken into the mouth.

Substance	CAS No.
Butylbenzyl phthalate / BBP	85-68-7
Dibutyl phthalate / DBP	84-74-2
Di-(2-ethylhexyl)-phthalate / DEHP	117-81-7
Di-iso-decylphthalate / DIDP	26761-40-0
Di-iso-nonylphthalate / DINP	28553-12-0
Di-n-octylphthalate / DNOP	117-84-0

8. Polycyclic Aromatic Hydrocarbons PAH

Test Method: ZEK 01.4-08
 EU Requirement: Directive 2001/95/EC; no limits are defined for consumer goods
 DE Requirement: ProdSG, LFGB § 30, ZEK 01.4-08; limit values refer to products with GS-certification, only (ZEK 01.4-08); no limits are defined for further products yet. Acc. to BfR 025/2009 the PAH content in consumer goods should be as low as possible (Federal Institute of Risk Assessment).

Substance	CAS No.
Benzo(a)pyrene	50-32-8
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Anthracene	120-12-7
Benzo(a)anthracene	56-55-3
Benzo(g,h,i)-perylene	191-24-2
Benzo(b)fluoranthene	205-99-2
Benzo(k)fluoranthene	207-08-9
Chrysene	218-01-9
Dibenz(a,h)anthracene	53-70-3
Fluoranthene	206-44-0
Fluorene	86-73-7
Indeno(1,2,3-cd)pyrene	193-39-5
Naphthalene	91-20-3
Phenanthrene	85-01-8
Pyrene	129-00-0
Benzo(e)pyrene	192-97-2
Benzo(j)fluoranthene	205-82-3

9. Dimethylfumarat

Test Method: Pretest Headspace GC-MS.
 Quantitation by ultrasonic extraction with dichloro methane for 30 min. at RT and subsequent GC-MS.
 EU Requirement: Regulation (EC) No 1907/2006 Annex XVII; valid for products and components of products

Substance	CAS No.
Dimethylfumarate	624-49-7

10. Perfluorinated Tensides	
Test Method: in-house method, Ultrasonic extraction with dichloro methane for 30 min at RT. Analytical determination is performed via LC-Qtrap	
EU Requirement: Regulation (EC) No 850/2004; legal limit: 0.1%, for coated textiles: 1 µg/m²; EU intends to find a limit for PFOA	
Substance	CAS No.
Perfluorooctane Sulfonate PFOS	2795-39-3
Perfluorooctane Acid PFOA	335-67-1

11. Organotin Compounds	
Test Method: DIN EN ISO 17353	
EU Requirement (DBT): Commission Decision 2009/425/EC; Limit: 0,1 % valid for paints and varnishes on consumer goods, PVC	
EU Requirement (DOT): Commission Decision 2009/425/EC; Limit: 0,1 % valid for textile articles with skin contact, gloves, shoes, wall and floor covering, baby articles, women care articles, nappies	
EU Requirement (TBT, TPhT): Commission Decision 2009/425/EC; limit: 0,1 % valid for consumer goods	
EU Requirement (toy, organotin compounds in sum): Directive 2009/48/EC, valid from July 2013	
CH Requirement: acc. to 817.023.21. The limit value of 5 mg/kg for all organotin compounds includes this regulation total.	
Substance	CAS No.
Dibutyltin (DBT)	
Monobutyltin (MBT)	
Tributyltin (TBT)	
Triphenyltin (TPhT)	
Dioctyltin (DOT)	
Monoocetyl tin (MOT)	
Tetrabutyltin (TTBT)	
Tricyclohexyltin (TCHT)	

12. Aromatic Amines	
Test method: § 64 LFGB L 00.00-6; Technical guideline EUR 24815 EN 2011; DIN EN 14362-1	
EU Requirement: Regulation (EU) No. 10/2011; Limit: 0,01 mg/kg sum of released primary aromatic amines, excluded are primary aromatic amines which are regulated in table 1 of annex I regulation (EU) No. 10/2011.	
DE Requirement: LFGB § 31	
Substance	CAS No.
Aniline	62-53-3
4,4'-Diaminodiphenylether	101-80-4
4,4'-Methylenedianiline	101-77-9
m-Phenyldiamine	108-45-2
2,4-Toluenediamine	95-80-7
2,6-Toluendiamin	823-40-5
3,3-Dimethylbenzidine	119-93-7

13. Azo Dyes / Cleavable Arylamines	
Test Method: Leather: §64 LFGB B 82.02-3 (DIN EN ISO 17234-1); Natural fibers and man made fibers and blends: DIN EN 14362-1; 4-Aminoazobenzene: DIN EN 14362-3 (DIN EN ISO 17234-2)	
EU Requirement: Regulation (EC) No 1907/2006 Annex XVII valid for textiles and leather with skin contact and toys	
Substance	CAS No.
2,4,5-Trimethylaniline	137-17-7
2,4-Diaminoanisole	615-05-4
2,4-Toluylenediamine	95-80-7
2-Amino-4-nitrotoluene	99-55-8
2-Naphthylamine	91-59-8
3,3'-Dichlorobenzidine	91-94-1
3,3'-Dimethoxybenzidine	119-90-4
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0
4,4'-Diaminodiphenylmethane	101-77-9
3,3'-Dimethylbenzidine	119-93-7
4,4'-Methylene-bis-(2-chloroaniline)	101-14-4
4,4'-Oxydianiline	101-80-4
4,4'-Thiodianiline	139-65-1
4-Aminodiphenyl	92-67-1
4-Chlor-o-toluidine	95-69-2
o-Aminoazotoluene	97-56-3
o-Anisidine	90-04-0
o-Toluidine	95-53-4
p-Chloroaniline	106-47-8
p-Cresidine	120-71-8
Benzidine	92-87-5
4-Aminoazobenzene	60-09-3

14. Disperse Dyestuffs, Allergenic	
Test Method: DIN 54231	
EU Requirement: Directive 2001/95/EC	
DE Requirement: ProdSG, LFGB § 30; Recommendation of BfR No 018/2007 (Federal Institute for Risk Assessment)	
Substance	CAS No.
Disperse Blue 1	2475-45-8
Disperse Blue 106	12223-01-7
Disperse Blue 124	61951-51-7
Disperse Blue 35	12222-75-2
Disperse Orange 3	730-40-5
Disperse Orange 37 / 76	13301-61-6
Disperse Red 1	2872-52-8
Disperse Yellow 3	2832-40-8
Dyestuffs, Additional	CAS No.
Disperse Blue 3	2475-46-9
Disperse Blue 7	3179-90-6
Disperse Blue 26	3860-63-7
Disperse Blue 102	12222-97-8
Disperse Brown 1	23355-64-8
Disperse Orange 1	2581-69-3
Disperse Red 17	3179-89-3
Disperse Red 11	2872-48-2
Disperse Yellow 1	119-15-3
Disperse Yellow 9	6373-73-5
Disperse Yellow 39	12236-29-2
Disperse Yellow 49	54824-37-2

15. Formaldehyde	
Test Method: plastic: DIN CEN/TS 13130-23; paper: EN 645 and DIN EN 1541; wood: EN 717-3; textiles: DIN EN ISO 14184	
EU Requirement: Regulation (EU) No. 284/2011; valid for melamin kitchenware from china only, Limit: 15 mg/kg	
DE Requirement: XXXVI. Papiere, Kartons und Pappen für den Lebensmittelkontakt; valid for paper, carton and cardboard, Limit: 1 mg/dm²	
Hansecontrol Recommendation for Baby articles; wood: 80 mg/kg, paper: 30 mg/kg and textile: 30 mg/kg	
Substance	CAS No.
Formaldehyde	50-0-0

16. Vinylchloride	
Test method: § 64 LFGB 80.32-1	
EU Requirement: Regulation (EC) No. 10/2011	
DE Requirement: BedGstV	
Substance	CAS No.
Vinylchlorid	75-01-4

17. Further Residual Chemicals

17.1 Trichlosan

Test Method: Housemethod, Ultrasonic extraction with dichloro methane for 30 min at RT, detection with GC-MS

DE Requirement: BedGgstV

Substance	CAS No.
Triclosan	3380-34-5

17.2 Bisphenol A

Test Method: DIN EN 14372

EU Requirement: Regulation (EC) No 10/2011: The use of Bisphenol A is totally forbidden for baby bottles of polycarbonate

DK Requirement: Recommendation of Danish Veterinary and Food Administration: Bisphenol A is prohibited in articles with food contact for children < 3 years

FR Requirement: Bisphenol A is prohibited in baby bottles

Substance	CAS No.
Bisphenol A	80-05-7

17.3 Heavy Metals, Extractable in Hydrochloric Acid

Test Method: DIN EN 71-3 / DIN EN ISO 17294-2

EU Requirement: Directive 88/378/EEC valid until July 2013; Directive 2009/48/EC valid from July 2013; valid for toys only

Limit: valid until July 2013

Substance / CAS No.	Limit
Antimony / 7440-36-0	60 mg/kg
Arsenic / 7440-38-2	25 mg/kg
Barium / 7440-39-3	1000
Lead / 7439-92-1	90 mg/kg
Cadmium / 7440-43-9	75 mg/kg
Chromium / 7440-47-3	60 mg/kg
Mercury / 7439-97-6	60 mg/kg
Selenium / 7782-49-2	500 mg/kg

Limit: in dry, brittle, powder-like or pliable toy material valid from July 2013

Substance / CAS No.	Limit
Aluminium / 7429-90-5	5 625 mg/kg
Antimony / 7440-36-0	45 mg/kg
Arsenic / 7440-38-2	3,8 mg/kg
Barium / 7440-39-3	4 500 mg/kg
Boron / 7440-42-8	1 200 mg/kg
Cadmium / 7440-43-9	1,3 mg/kg
Chromium (III)	37,5 mg/kg
Chromium (VI)	0,02 mg/kg
Cobalt / 7440-48-4	10,5 mg/kg
Copper / 7440-50-8	622,5 mg/kg
Lead / 7439-92-1	13,5 mg/kg
Manganese / 7439-95-47	1 200 mg/kg
Mercury / 7439-97-6	7,5 mg/kg
Nickel / 7440-02-0	75 mg/kg
Selenium / 7782-49-2	37,5 mg/kg
Strontium / 7440-24-6	4 500 mg/kg
Tin / 7440-31-5	15 000 mg/kg
Organic tin	0,9 mg/kg
Zinc / 7440-66-6	3 750 mg/kg

July 2013

Substance / CAS No.	Limit
Aluminium / 7429-90-5	1 406 mg/kg
Antimony / 7440-36-0	11,3 mg/kg
Arsenic / 7440-38-2	0,9 mg/kg
Barium / 7440-39-3	1 125 mg/kg
Boron / 7440-42-8	300 mg/kg
Cadmium / 7440-43-9	0,3 mg/kg
Chromium (III)	9,4 mg/kg
Chromium (VI)	0,005 mg/kg
Cobalt / 7440-48-4	2,6 mg/kg
Copper / 7440-50-8	156 mg/kg
Lead / 7439-92-1	3,4 mg/kg
Manganese / 7439-95-47	300 mg/kg
Mercury / 7439-97-6	1,9 mg/kg
Nickel / 7440-02-0	18,8 mg/kg
Selenium / 7782-49-2	9,4 mg/kg
Strontium / 7440-24-6	1 125 mg/kg
Tin / 7440-31-5	3 750 mg/kg
Organic tin	0,2 mg/kg
Zinc / 7440-66-6	938 mg/kg

Limit: in scraped-off toy material valid from July 2013

Substance / CAS No.	Limit
Aluminium / 7429-90-5	70 000 mg/kg
Antimony / 7440-36-0	560 mg/kg
Arsenic / 7440-38-2	47 mg/kg
Barium / 7440-39-3	56 000 mg/kg
Boron / 7440-42-8	15 000 mg/kg
Cadmium / 7440-43-9	17 mg/kg
Chromium (III)	460 mg/kg
Chromium (VI)	0,2 mg/kg
Cobalt / 7440-48-4	130 mg/kg
Copper / 7440-50-8	7 700 mg/kg
Lead / 7439-92-1	160 mg/kg
Manganese / 7439-95-47	15 000 mg/kg
Mercury / 7439-97-6	94 mg/kg
Nickel / 7440-02-0	930 mg/kg
Selenium / 7782-49-2	460 mg/kg
Strontium / 7440-24-6	56 000 mg/kg
Tin / 7440-31-5	180 000
Organic tin	12 mg/kg
Zinc / 7440-66-6	46 000 mg/kg

18. Pull-off Force of Buttons and Small Parts

Test Method: DIN EN 71-1

EU Requirement: Directive 2001/95/EC; Directive 88/378/EEC valid until 2011/2013; Directive 2009/48/EC valid from 2011/2013; valid for toys only

DE Requirement: ProdSG

19. Sensoric properties

Test Method: in general DIN 10955; paper, cardboard: DIN EN 1230-1/-2

EU Requirement: Regulation (EC) No 1935/2004, odour and taste: grade 2

DE Requirement: LFGB § 31, odour and taste: grade 2

20. Perspiration

Test Method: DIN 53160; grade 5 = no staining / no colour change, grade 1 = very strong staining / very strong colour change (grey scale acc. to DIN EN 20105-A02; ISO 105-A02)

DE Requirement: Recommendation of BfR XLVII (Federal Institute for Risk Assessment), valid for toys

SK Requirement: Decree 635/2005 limit is valid for baby textiles with skin contact

21. Sum (Lead, Cadmium, Mercury, Chromium VI)

Test Method: DIN EN ISO 17294-2 / EPA 1620 / DIN EN 1122

EU Requirement: Directive 94/62/EC

Substance	CAS No.
Lead	7439-92-1
Cadmium	7440-43-9
Chromium VI	
Mercury	7439-97-6

22. Dimethylfumarate in Silica

Test Method: Pretest Headspace GC-MS. Quantitation by ultrasonic extraction with dichloro methane for 30 min. at RT and subsequent GC-MS.

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII; valid for products and components of products

Substance	CAS No.
Dimethylfumarate	624-49-7

23. Cobalt dichloride in Silica

Test Method: X-ray fluorescence analysis (RFA)

REACH Requirement: Cobalt dichloride is relevant acc. to REACH (Regulation (EC) 1907/2006 Art. 33 and Annex XIV)

EU Requirement: Directive 2001/95/EC

DE Requirement: ProdSG, LFGB § 30

Substance	CAS No.
Cobalt dichloride	7646-79-9

13.8.2 Minimum Requirements for Other Non-textile Outdoor Articles

		Natural fibres	Man-made fibres and blends	Leather	Plastisol Prints	Finisings and foil coatings	Plastic components and coatings /Rubber	Foams	Derived timber products / wood	Varnish and paints	Metal components	Strictest European Legal Limit	Country of Legal Regulation	
Mandatory Test Parameters	A: Hazardous Substances													
	1.	Azo dyes / Cleavable arylamines / skin contact > 15 min	X	X	X	X						30 mg/kg	EU	
	2.	Disperse dyestuffs, allergenic / skin contact > 15 min		X								5 mg/l	DE	
	3.	Heavy Metals, total content												
	3.1	Lead				X		X				100 mg/kg	DK	
	3.2	Cadmium				X		X			X	100 mg/kg	EU	
	4.	Chromium VI			X							3 mg/kg	EU	
	5.	Nickel release												
	5.1	Nickel / skin contact > 15 min									X	0,5 µg/(cm² * week)	EU	
	6.	Chlorinated phenols												
	6.1	Pentachlorophenol	X	X	X	X	X			X		0,5 mg/kg	AT, CH, DE, DK, NL, NO, SK	
	6.2	Tetrachlorophenols total	X	X	X	X	X			X		5 mg/kg	CH	
	7.	Dimethylfumarate			X					X		0,1 mg/kg	EU	
	8.	Formaldehyde	X	X	X	X	X					Baby: 20 mg/kg Adult: 100 mg/kg	AT, CZ, DE, FI, FR, NL, NO, SK	
	9.	Polycyclic aromatic hydrocarbons PAH / in case of specific odour only												
	9.1	Polycyclic aromatic hydrocarbons - sum PAH, skin contact > 30 s	X	X	X	X	X	X	X	X	X		10 mg/kg	
	9.2	Benzo(a)pyrene, skin contact > 30 s	X	X	X	X	X	X	X	X	X		1 mg/kg	
9.3	Polycyclic aromatic hydrocarbons - sum PAH, skin contact < 30 s	X	X	X	X	X	X	X	X	X		200 mg/kg		
9.4	Benzo(a)pyrene, skin contact < 30 s	X	X	X	X	X	X	X	X	X		20 mg/kg		
10.	Perfluorinated Tensides													
10.1	Perfluorooctane Sulfonate PFOS					X						1 µg/m²	EU	
10.2	Perfluorooctane Acid PFOA					X						1 µg/m²	NO	
11.	Chlorinated Paraffines C10 - C13			X	X	X	X		X			no use	EU	
Additional Test Parameters	12.	Plasticizers: Phthalates												
	12.1	DEHP, DBP, DIBP, BBP, DINP, DIDP, DNOP				X		X				0,1%	EU (Baby)	
	13.	Organotin compounds												
	13.1	Dibutyltin (DBT)	X	X	X	X	X	X	X			2 mg/kg		
	13.2	Tributyltin (TBT)	X	X	X	X	X	X	X			1 mg/kg		
	13.3	Triphenyltin (TPhT)	X	X	X	X	X	X	X			1 mg/kg		
	13.4	Diocetyl tin (DOT)	X	X	X	X	X	X	X			2 mg/kg		
	14.	Aromatic amines												
	14.1	p-Phenyldiamine	X	X								no use	CH	
	15.	Azo dyes / Cleavable arylamines / skin contact < 15 min	X	X	X	X	X	X	X	X	X	30 mg/kg		
	16.	Heavy Metals, extractable												
	16.1	Antimony	X	X	X	X	X	X	X	X	X	30 mg/kg	CZ, SK (Baby)	
	16.2	Arsenic	X	X	X	X	X	X	X	X	X	0,2 mg/kg	CZ, SK (Baby)	
	16.3	Lead	X	X	X	X	X	X	X	X	X	textile: 0,2 mg/kg leather: 0,1 mg/kg	CZ, SK (Baby)	
	16.4	Cadmium	X	X	X	X	X	X	X	X	X	textile: 0,1 mg/kg leather: 0,8 mg/kg	CZ, SK (Baby)	
	16.5	Chromium	X	X		X	X	X	X	X	X	textile: 1 mg/kg	CZ, SK (Baby)	
	16.6	Chromium VI	X	X		X	X	X	X	X	X	textile: 0,5 mg/kg	CZ, SK (Baby)	
16.7	Cobalt	X	X	X	X	X	X	X	X	X	1 mg/kg	CZ, SK (Baby)		
16.8	Copper	X	X	X	X	X	X	X	X	X	25 mg/kg	CZ, SK (Baby)		
16.9	Nickel	X	X	X	X	X	X	X	X	X	1 mg/kg	CZ, SK (Baby)		
16.10	Mercury	X	X	X	X	X	X	X	X	X	0,02 mg/kg	CZ, SK (Baby)		
17.	Further residual chemicals													
17.1	Harmful substances LFGB § 30	X	X	X	X	X	X	X	X	X	no use			
17.2	Biocides	X	X	X	X	X	X	X	X	X	no use			
Electric	18.	Flame retardants brominated (RoHS)												
	18.1	Polybrominated Biphenyles PBB	X	X	X	X	X	X	X	X		0,1%	EU	
	18.2	Penta-, Octa-, Decabromodiphenylether	X	X	X	X	X	X	X	X		0,1%	EU	
	19.	Heavy metals in electronic devices (RoHS)												
	19.1	Lead	X	X	X	X	X	X	X	X	X	0,1%	EU	
19.2	Cadmium	X	X	X	X	X	X	X	X	X	0,01%	EU		
19.3	Chromium VI	X	X	X	X	X	X	X	X	X	0,1%	EU		
19.4	Mercury	X	X	X	X	X	X	X	X	X	0,1%	EU		

B: Special Safety Requirements for Baby Articles		Limit	Leg. Req.
Mand	20. Pull-off force of buttons and small parts		EU
	20.1 Parts > 6 mm	Requirements acc. to DIN EN 71-1 have to be met.	
	20.2 Parts ≤ 6 mm	Requirements acc. to DIN EN 71-1 have to be met.	
	21. Flammability	Requirements acc. to DIN EN 71-2 have to be met.	EU

C: Mechanical / Electrical Safety	
Mandatory	According to Directive 2001/95/EC the vendor has to prove the safety of the product. This is generally valid for every product. For some articles there are special testing standards for this purpose. Some standards can be found in the appendix. Additionally for each product must be considered whether other requirements are necessary.
	22. Mechanical safety
	22.1 Outdoor Furniture: tables, chairs 22.2 Camping tents
E	23. Electronic appliances (headlamp, flashlight, lantern, binoculars, compass)

D: Quality		Limit	Leg. Req.
M	24. Odour / product atypical	Grade 3	

E: Hazardous Substances in Packaging		Limit	Leg. Req.
M	25. Sum (Lead, Cadmium, Mercury, Chromium VI)	100 mg/kg	EU
A	26. Dimethylfumarate in Silica	0,1 mg/kg	EU
	27. Cobalt dichloride in Silica	no use	

F: REACH	
REACH	In case of contents > 0,1% per article weight substances of very high concern (SVHC) from the REACH candidate list, the supplier is legally obligated to transmit the information (Regulation (EC) 1907/2006 Art. 33 and Annex XIV). SVHC-Substances, see http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp .

G: Testing Procedure and Remarks	
[5]	The nickel limit refers to metal components with skin contact over a long time period (several hours) during a day. Only if a nickel release was proven by the nickel rubbing test acc. to DIN EN 12471, a test acc. to DIN EN 1811, which takes a time period of one week, is conducted. Metal components, that are varnished or painted are treated acc. to DIN EN 12472 before.
[10]	Perfluorinated tensides have to be tested in case of water or dirt-repellent coatings only.
[17]	Carcinogenic, mutagenic, reproductive toxic (67/548/EEC, categories 1 and 2), sensitizing and skin irritating substances (67/548/EEC, R36, R37, R38, R42, R43) must not be detected in concentrations, which are relevant according to LFGB § 30 Generally biocides are not allowed. Products with biocidal finishing have to meet Regulation (EU) 528/2012 and Directive 98/8/EC.
[24]	For the odour evaluation at first a skilled person decides if the article has an atypical odour. In this case only the odour test acc. to SNV 195 651 is conducted.

H: Country of Legal Regulation	
	The column in table A indicates in which country a regulation exists. The details, e.g. the limit for each country, are given in the attachment. The limit value is the strictest value of all European countries.

I: Hazardous Substances, Product Safety and Quality	
	Each article including the packaging has to achieve all requirements given under A - G. These requirements are classified into four categories in order to determine a testing strategy. The four categories are: mandatory test parameters, additional test parameters, electric test parameters and reach test parameters. Additionally the supplier assures that the delivered article meets all requirements under Regulation (EC) 1907/2006 and Directive 2001/95/EC.

J: Definition of the Product Group	
	This requirement sheet refers to outdoor articles (tents, compasses, binoculars, carabiner, trekking poles, headlamps, flashlights, seating, tables, camp beds, mats, hammocks, mosquito nets and beach carts). Following articles are excluded from this profile: solar shower, lights for bicycles, double action pump, rescue blanket and locks.

K: Declaration of Conformity	
	By way of statement of conformity to ISO/IEC 17050 the supplier commits himself to deliver merchandise in conformity with the respective test

L: Address Data	
	The address data of the EU-distributor have to be placed on the product, see Directive 2001/95/EC.

1. Azo Dyes / Cleavable Arylamines

Test Method: Leather: §64 LFGB B 82.02-3 (DIN EN ISO 17234-1); Natural fibers and man made fibers and blends: DIN EN 14362-1; 4-Aminoazobenzene: Leather: DIN EN ISO 17234-2 and Textiles : DIN EN 14362-3

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII valid for textiles and leather with skin contact: 30 mg/kg

Substance	CAS No.
2,4,5-Trimethylaniline	137-17-7
2,4-Diaminoanisole	615-05-4
2,4-Toluylenediamine	95-80-7
2-Amino-4-nitrotoluene	99-55-8
2-Naphthylamine	91-59-8
3,3'-Dichlorobenzidine	91-94-1
3,3'-Dimethoxybenzidine	119-90-4
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0
4,4'-Diaminodiphenylmethane	101-77-9
3,3'-Dimethylbenzidine	119-93-7
4,4'-Methylene-bis-(2-chloroaniline)	101-14-4
4,4'-Oxydianiline	101-80-4
4,4'-Thiodianiline	139-65-1
4-Aminodiphenyl	92-67-1
4-Chlor-o-toluidine	95-69-2
o-Aminoazotoluene	97-56-3
o-Anisidine	90-04-0
o-Toluidine	95-53-4
p-Chloroaniline	106-47-8
p-Cresidine	120-71-8
Benzidine	92-87-5
4-Aminoazobenzene	60-09-3

2. Disperse Dyestuffs, Allergenic

Test Method: DIN 54231

EU Requirement: Directive 2001/95/EC

DE Requirement: ProdSG, LFGB § 30; Recommendation of BfR No 041/2012 (Federal Institute for Risk Assessment)

Substance	CAS No.
Disperse Blue 1	2475-45-8
Disperse Blue 106	12223-01-7
Disperse Blue 124	61951-51-7
Disperse Blue 35	12222-75-2
Disperse Orange 3	730-40-5
Disperse Orange 37 / 76	13301-61-6
Disperse Red 1	2872-52-8
Disperse Yellow 3	2832-40-8

3. Heavy Metals, Total Content

Test Method: DIN EN ISO 17294-2 / EPA 1620 / DIN EN 1122

EU Requirement (Cadmium): Regulation (EC) No 1907/2006 Annex XVII no use of cadmium in wood preservatives; limit for cadmium in paints and varnishes: 0,1%; limit for cadmium in synthetics components (all commodities): 100 mg/kg

EU Requirement (Lead): Regulation (EC) No 1907/2006 Annex XVII no use of lead carbonates and sulfates; no use of lead in wood preservatives; further limits for lead in batteries acc. to Directive 2006/66/EC

DK Requirement (Lead): Statutory Order No. 1082 of 13 September 2007 valid for consumer goods; limit for lead in plastics: 100 mg/kg

PL Requirement (Cadmium): Ordinance of the Council of Ministers on 6 April 2004 on safety and labelling of textile products. Limit: no use

PL Requirement (Lead): Ordinance of the Council of Ministers on 6 April 2004 on safety and labelling of textile products. Limit: no use

Substance	CAS No.
Cadmium	7440-43-9
Lead	7439-92-1

4. Chromium VI

Test Method: DIN EN ISO 17075; §64 LFGB B 82.02-11

EU Requirement: Directive 2001/95/EC

DE Requirement: BedGgstV, valid for leather articles with skin contact: 3 mg/kg

Substance	CAS No.
Chromium VI	

5. Nickel Release

Test Method: DIN EN 1811; Metal components that are varnished or painted are treated acc. to DIN EN 12472 before.

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII, Limit (direct skin contact): 0,5 µg/cm²/week

Substance	CAS No.
Nickel	7440-02-0

6. Chlorinated Phenols

Test Method: EN ISO 17070; EPA 3545A

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII; PCP limit for preparations: 0,1%

AT Requirement: ChemVerbotsV 2003 limit for PCP in preparations: 0,1 %; limit for PCP in consumer goods: 5 mg/kg

CH Requirement: ChemRRV 814.81 no use of PCP and TeCP, Swiss authorities accept articles up to PCP/TeCP-contents of 5 mg/kg

NL Requirement: Besluit van 23 september 1997, houdende vaststelling van het Warenwetbesluit Pentachloorfenol; Limit for PCP in consumer goods: 5 mg/kg

DE Requirement: ChemVerbotsV limit for PCP in preparations: 0,1%; limit for PCP in consumer goods: 5 mg/kg

PL Requirement: Ordinance of the Council of Ministers on 6 April 2004 on safety and labelling of textile products. Limit for PCP: 5 mg/kg

SK Requirement: Decree 635/2005 PCP limit in textiles: 0,5 mg/kg; PCP limit in leather: adult 5 mg/kg and baby 0,5 mg/kg

Substance	CAS No.
Pentachlorophenol	87-86-5
2,3,4,5-Tetrachlorophenol	4901-51-3
2,3,4,6-Tetrachlorophenol	58-90-2
2,3,5,6-Tetrachlorophenol	935-95-5

7. Dimethylfumarate

Test Method: Pretest Headspace GC-MS. Quantitation by ultrasonic extraction with dicloro methane for 30 min at RT and subsequent detection GC-MS.

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII; valid for products and components of products: 0,1 mg/kg

Substance	CAS No.
Dimethylfumarate	624-49-7

8. Formaldehyde

Test Method (textiles/leather): DIN EN ISO 14184-1/ ISO 17226-2	
AT Requirement: PSG 2004; BGBl. No 194/1990; mandatory labelling of formaldehyde in textiles with skin contact at a content > 1500 mg/kg	
DE Requirement: BedGgstV § 10 Anl. 9.2; mandatory labelling of formaldehyde in articles with skin contact at a content > 1500 mg/kg	
FI Requirement: Decree 210/1988; Limit in textiles with skin contact: 100 mg/kg	
FR Requirement: Notification 97/01431/F; Limit in articles with skin contact: 100 mg/kg	
NL Requirement: Legislative Decree formaldehyde in textiles, Decision of 22. March 2001; Limit in articles with skin contact: 120 mg/kg	
NO Requirement: Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften); Limit for commodities with direct skin contact: 100 mg/kg, Limit for products for babies or children under the age of 3 years: 30 mg/kg	
PL Requirement: Ordinance of the Council of Ministers on 6 April 2004 on safety and labelling of textile products. Limit for commodities with direct skin contact: 150 mg/kg, for commodities with indirect skin contact: 300 mg/kg, for babies or children under the age of 3 years: 20 mg/kg, for woven fabric, blanket, duvets, cushions and their fillings 150 mg/kg, for all other products 500 mg/kg	
SK Requirement: Decree 635/2005: Adults: Formaldehyde in leather: 150 mg/kg, in textile: 75 mg/kg; babies: Formaldehyde in leather: 50 mg/kg, in textile: 20 mg/kg	
Substance	CAS No.
Formaldehyde	50-00-0

9. Polycyclic Aromatic Hydrocarbons PAH

Test Method: ZEK 01.4-08	
EU Requirement: Directive 2001/95/EC; no limits are defined for consumer goods	
DE Requirement: ProdSG, LFGB § 30, ZEK 01.4-08; limit values refer to products with GS-certification, only (ZEK 01.4-08); no limits are defined for further products yet. Acc. to BfR 025/2009 the PAH content in consumer goods should be as low as possible (Federal Institute of Risk Assessment).	
Substance	CAS No.
Benzo(a)pyrene	50-32-8
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Anthracene	120-12-7
Benzo(a)anthracene	56-55-3

Benzo(g,h,i)-perylene	191-24-2
Benzo(b)fluoranthene	205-99-2
Benzo(k)fluoranthene	207-08-9
Chrysene	218-01-9
Dibenz(a,h)anthracene	53-70-3
Fluoranthene	206-44-0
Fluorene	86-73-7
Indeno(1,2,3-cd)pyrene	193-39-5
Naphthalene	91-20-3
Phenanthrene	85-01-8
Pyrene	129-00-0
Benzo(e)pyrene	192-97-2
Benzo(j)fluoranthene	205-82-3

10. Perfluorinated Tensides

Test Method: in-house method, Ultrasonic extraction with dichloro methane for 30 min at RT. Analytical determination is performed via LC-Qtrap	
EU Requirement: Regulation (EC) No 850/2004; legal limit for products: 0,1%, for preparations: 10 mg/kg and for coated textiles: 1 µg/m ² ; EU intends to find a limit for	
NO Requirement valid from 1 January 2013: Regulation 1. June 2004 No.922 (Product Regulation); legal limit PFOA and individual salts and individual esters: for sell consumer textiles, floor carpeting and other coated consumer products: 1 µg/m ² ; for other consumer products: 0,0001%	
Substance	CAS No.
Perfluorooctane Sulfonate PFOS	2795-39-3
Perfluorooctane Acid PFOA and individual Esters and individual Salts	335-67-1,
	3825-26-1,
	335-95-5,
	2395-00-8,
	2395-00-8,
	335-93-3,
	335-66-0,
	376-27-2,
3108-24-5	

11. Chlorinated Paraffins C10-C13

Test Method: in-house method, Ultrasonic extraction in dichlormethane for 30 min at RT, detection of short chained paraffins via LC-TOF	
EU Requirement: Regulation (EC) 850/2004 Annex I, limit 1% valid for substances and preparations. SCCPs containing items are prohibited. Articles produced before on 10 July 2012 containing SCCPs are allowed until 10 January 2013.	
Substance	CAS No.
Chlorinated Paraffins C10-C13	85535-84-8

12. Plasticizers: Phthalates

Test Method: DIN EN 15777; DIN EN 14372; EPA M 1625	
EU Requirement: Regulation (EC) No 1907/2006 Annex XVII, valid for toys and childcare products only; limits: sum (DEHP, BBP, DBP) = 0,1% for all kinds of toys and childcare products, sum (DNOP, DIDP, DINP) = 0,1% refers to parts that can be taken into the mouth.	
DK Requirement: Statutory Order no. 786 of 11 July 2006, valid for toys and childcare products only; limits: sum (DEHP, BBP, DBP) = 0,1% for all kinds of toys and childcare products, sum (DNOP, DIDP, DINP) = 0,1% refers to parts that can be taken into the mouth. Moreover: 0,05% of other phthalates, valid for toys and childcare products for babies < 3 years	
Substance	CAS No.
Butylbenzyl phthalate / BBP	85-68-7
Dibutyl phthalate / DBP	84-74-2
Di-(2-ethylhexyl)-phthalate / DEHP	117-81-7
Di-iso-butylphthalate / DIBP	84-69-5
Di-iso-decylphthalate / DIDP	26761-40-0
Di-iso-nonylphthalate / DINP	28553-12-0
Di-n-octylphthalate / DNOP	117-84-0

13. Organotin Compounds

Test Method: DIN EN ISO 17353	
EU Requirement (DBT): Regulation (EC) 1907/2006 Annex XVII; Limit: 0,1 % valid for mixture and consumer goods	
EU Requirement (DOT): Regulation (EC) 1907/2006 Annex XVII; Limit: 0,1 % valid for textile articles with skin contact, gloves, shoes, wall and floor covering, baby articles, women care articles, nappies	
EU Requirement (TBT, TPhT): Regulation (EC) 1907/2006 Annex XVII; limit: 0,1 % valid for consumer goods	
EU Requirement (toy, migration of organotin): Directive 2009/48/EC, valid from July 2013	
DE Requirement: Recommendation of BfR No XLVII: No use for toys for children < 3 years (Federal Institute for Risk Assessment)	
Hansecontrol Recommendation: DBT, DOT: 2 mg/kg; TBT, TPhT: 1 mg/kg; baby DBT, DOT: 1 mg/kg; baby TBT, TPhT: 0,5 mg/kg	
Substance	CAS No.
Dibutyltin (DBT)	
Tributyltin (TBT)	
Triphenyltin (TPhT)	
Diocetyl tin (DOT)	

14. Aromatic Amines

Test Method: DIN EN 14362-1	
CH Requirement: Directive 817.023.41: no use of p-phenylenediamine in textiles	
Substance	CAS No.
p-Phenylenediamine	106-50-3

15. Azo Dyes / Cleavable Arylamines

Test Method: Leather: §64 LFGB B 82.02-3 (DIN EN ISO 17234-1); Natural fibers and man made fibers and blends: DIN EN 14362-1; 4-Aminoazobenzene: Leather: DIN EN ISO 17234-2 and Textiles : DIN EN 14362-3

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII valid for textiles and leather with skin contact: 30 mg/kg

Substance	CAS No.
2,4,5-Trimethylaniline	137-17-7
2,4-Diaminoanisole	615-05-4
2,4-Toluylenediamine	95-80-7
2-Amino-4-nitrotoluene	99-55-8
2-Naphthylamine	91-59-8
3,3'-Dichlorobenzidine	91-94-1
3,3'-Dimethoxybenzidine	119-90-4
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0
4,4'-Diaminodiphenylmethane	101-77-9
3,3'-Dimethylbenzidine	119-93-7
4,4'-Methylene-bis-(2-chloroaniline)	101-14-4
4,4'-Oxydianiline	101-80-4
4,4'-Thiodianiline	139-65-1
4-Aminodiphenyl	92-67-1
4-Chlor-o-toluidine	95-69-2
o-Aminoazotoluene	97-56-3
o-Anisidine	90-04-0
o-Toluidine	95-53-4
p-Chloroaniline	106-47-8
p-Cresidine	120-71-8
Benzidine	92-87-5
4-Aminoazobenzene	60-09-3

16. Heavy Metals, extractable

Test Method: DIN EN ISO 17294-2 / DIN EN ISO 17072-1 / DIN EN ISO 105-E04

CZ Requirement: Act No 84/2001: limits are valid for toys and baby products for the materials textile, leather and synthetics.

SK Requirement: Decree 635/2005: limits are valid for textiles and leather with skin contact

Substance	CAS No.
Antimony	7440-36-0
Arsenic	7440-38-2
Lead	7439-92-1
Cadmium	7440-43-9
Chromium	7440-47-3
Chromium VI	
Cobalt	7440-48-4

Copper	7440-50-8
Nickel	7440-02-0
Mercury	7439-97-6

17. Further Residual Chemicals

Test Method: in-house method, Ultrasonic extraction in dichloromethane for 30 min, detection with GC-MS

EU Requirement: Directive 2001/95/EC

18. Flame retardants (RoHS)

Test Method: in-house method, Ultrasonic extraction in dichloro methane for 30 min at RT, detection with GC-MS or LC-TOF

RoHS Requirement (Octa-, Penta-, Decabromdiphenylether, Polybrominated Biphenyls PBB): Directive 2011/65/EU; Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Substance	CAS No.
Decabromobiphenylether	1163-19-5
Octabromodiphenylether	32536-52-0
Pentabromodiphenylether	32534-81-9

19. Heavy Metals in Electronic Devices (RoHS)

Test Method: DIN EN ISO 17294-2 / EPA 1620 / DIN EN 1122 / DIN EN ISO 17075

RoHS Requirement: Directive 2011/65/EU; Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Substance	CAS No.
Lead	7439-92-1
Cadmium	7440-43-9
Chromium VI	
Mercury	7439-97-6

20. Pull-off Force of Buttons and Small Parts

Test Method: DIN EN 71-1

EU Requirement: Directive 2001/95/EC; Directive 88/378/EEC valid until 2011/2013; Directive 2009/48/EC valid from 2011/2013; valid for toys only

DE Requirement: ProdSG

21. Flammability

Test Method: DIN EN 71-2

EU Requirement: Directive 2001/95/EC; Directive 88/378/EEC valid until 2011/2013; Directive 2009/48/EC valid from 2011/2013; valid for toys only

DE Requirement: ProdSG

22. Mechanical Safety

Camping furniture	EN 581 -1 / -2 / -3
Camping tents	DIN EN ISO 5912

23. Electronic appliances

Test Method (Electromagnetic compatibility EMC): depends on article

EU Requirement (Electromagnetic compatibility EMC): Directive 2004/108/EC

Test Method (Electrical safety): depends on article

EU Requirement (Electrical safety): Directive 2006/95/EC

24. Odour

Test Method: SNV 195 651

Hansecontrol Recommendation

25. Sum (Lead, Cadmium, Chromium VI, Mercury)

Test Method: DIN EN ISO 17294-2

EU Requirement: Directive 94/62/EC

Substance	CAS No.
Lead	7439-92-1
Cadmium	7440-43-9
Chromium VI	
Mercury	7439-97-6

26. Dimethylfumarate in Silica

Test Method: Pretest Headspace GC-MS. Quantitation by ultrasonic extraction with dichloro methane for 30 min at RT and subsequent detection GC-MS.

EU Requirement: Regulation (EC) No 1907/2006 Annex XVII; valid for products and components of products: 0,1 mg/kg

Substance	CAS No.
Dimethylfumarate	624-49-7

27. Cobalt Dichloride in Silica

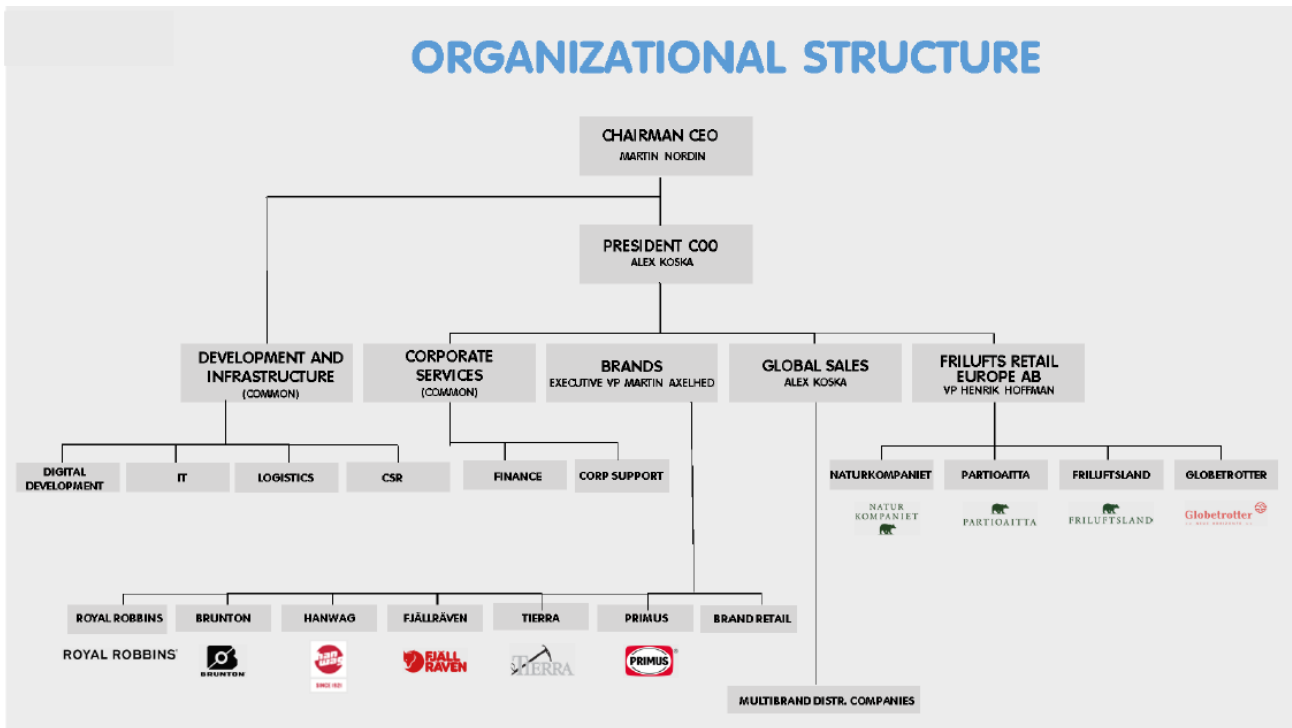
Test Method: IEC 62321 Ed.1

EU Requirement: Directive 2001/95/EC

DE Requirement: ProdSG

Substance	CAS No.
Cobalt dichloride	7646-79-9

13.9 Appendix 9: Structure



13.10 Appendix 10: Recommendations and Instructions for our Business Partners

The first major step toward better access to chemicals data is to know and document the company name and geographic location of your chemical suppliers, i.e., the companies that should have access to the chemical data that must be passed up the supply chain from the chemical supplier himself via the original “Tier 4” partner, to users of chemicals in the manufacture of product, to brands and ultimately also to the retailers.

Retailers and brands should maintain an inventory or map of the companies from which they purchase the final product, in order to establish a source of chemical data related to that product. In the case of a retailer this is a brand. In the case of a brand this is likely a garment cut/sew/finish facility or other intermediary.

Suppliers to brands should maintain an inventory for chemical suppliers for all chemicals purchased.

The second major step is to obtain chemical data. When communicating, be clear in specifying the types of information needed, how that information should be provided, how the information will be used, and consequences of not providing that information. Fenix Outdoor has mapped its expectations in the Chemical Guideline/RSL and expects business partners to adhere to these principles therein.

For chemical products that you are purchasing from your suppliers, use a Material Safety Data Sheet (MSDS) or SDS as a starting point to get an initial view of chemical ingredient information. If the ingredients listed on the MSDS do not total 100%, ask your supplier to provide complete ingredient information. You can use the template suggested in this document.

1. When selecting a raw materials supplier /chemical/ production process: ensure that it meets international standards. How can I know that those standards are met? Look for certifications (ISO 17095, ISO 14000, ISO 9000, bluesign).
2. When using a chemical: get a reconfirmation that the chemical does not contain any of the substances listed in the Chemical Guideline and that they did not play part in the production of the chemical. Should they have been part in any step of the production, get confirmation that the prescribed limits and thresholds are met.
3. Cross-test chemicals and YOUR product, delivered to the respective Fenix Outdoor entity for potential traces of chemicals, listed in the RSL. Select those chemicals you know (a) were/are part of a formulation or (b) were/are present in the product or (c) are used in any of your production places but for a different customer.
4. Ensure that cross-contamination and infection during your production cannot take place
5. Clean your machines and production line regularly.
6. Do not mix formulations, fabrics or production lines for Fenix Outdoor with those for any other given customer present at the same location at the same time.
7. Develop operational manuals and work instructions accordingly.
8. When testing materials – send reports to the respective Fenix entity, irrespective of the results immediately.
9. Produce regular reports (at least once half a year) on water usage/wastewater treatment and present test results on the wastewater samples. Do not “cheat” by diluting the waste water or sludge – look for a viable solution to get better results by actually being better.

10. Continue to develop a partnership with Fenix Outdoor by using open dialogue and engagement. If there is a problem, we will find a solution for that – together. Speak to us. Frequently.

13.10.1 Sample, customizable letter to suppliers requesting chemical information

Date

Name
Company
Address

Dear :

I am writing to request information on the following chemicals/materials/components/products that you are supplying to us/we are interested in purchasing from you:

Product 1
Product 2

This information is needed by Company (choose one or more of the following)

to help us comply with regulations that restrict the use of certain chemicals in our products

to help us comply with regulations that require disclosure of chemical content in our products

to support our company's program that restricts the use of certain chemicals in our products

to evaluate environmental, health and safety characteristics of chemicals prior to selection for use in our products

to ensure that all the chemical ingredients in our products meet our standards for safety

to support our participation in a green certification program, called *name of program*

to help us comply with a retailer customer's requirements to disclose chemical ingredients in our products

to support our company's voluntary program to disclose chemical ingredients to our customers

Please fill out the form below, sign and return to us.

If you have questions, need additional guidance, or would like to set up a non-disclosure agreement (NDA) or other mechanism to protect trade secret information, please contact

_____ at _____

Sincerely,

13.10.2 Sample, Customizable Material Information Form

Material Information Form

Material Name (INCI format, if possible):

CAS No:

Trade Name:

Producing Company:

Location of Manufacture:

For each product supplied, we request the information indicated below. Please check each item that is being provided, attach documents requested and sign at the bottom.

Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) - attach

Technical data sheet - attach

Certificate of analysis (COA) (if available) – attach

Chemical composition information – fill in information below

Please copy and complete the table for each product that we are requesting information on. Target weights should total to 100%

List all intentionally-added⁴ constituents in part 1 of the table below and impurities in part 2

Part 1. Intentionally-added constituents - if supplied material is the product of chemical synthesis, list feedstock materials and solvents			
Constituent name (INCI or equivalent)	CAS number⁵/EINECS or ELINCS⁶/EC No⁷/C.I.⁸	Weight % (minimum/maximum/target)	Constituent Function in Product*

⁴ *Intentionally added* means anything deliberately utilized in the formulation of a material, part or product where its use in the formulation or continued presence in the finished article is desired to provide a specific characteristic, appearance or quality or where it is added in manufacturing and where some or all remains in the final product (e.g., a catalyst or solvent carrier). Intentionally added substances and materials can be introduced at any point in the supply chain -- a sub-tier supplier may add a material or substance to a material or part that a tier 1 supplier sells to a customer.

If supplied material is the product of chemical synthesis, feedstock materials and solvents should be listed.

⁵ CAS (Chemical Abstract Service) registry number are unique numerical identifiers for chemical compounds, polymers, biological sequences, mixtures and alloys.

⁶ The EINECS number is a registry number given to each chemical substance commercially available in the EU between January 1, 1971 and September 18, 1981. The inventory was created by [Directive 67/548/EEC](#). As of September 19, 1981, the inventory has been replaced by the ELINCS. All new substances brought in to the European market are allocated an ELINCS number after their notification to the European Commission.

⁷ EC-No, or European Commission number, is the seven-digit code that is assigned to chemical substances that are commercially available within the European Union.

⁸ Colorants (dyes and pigments) are listed according to Colour Index Generic Names and Colour Index Constitution Numbers

*Constituent function can be: raw material/feedstock, preservative/anti-oxidant, solvent, catalyst, coating, finishing chemical, fragrance, UV filter, or other categories.

Part 2. Impurities – list impurities regardless of amount, including residues, catalysts, reaction by-products, residual solvent carriers, unreacted raw materials (e.g., monomers).

Constituent name	CAS number/EINECS or ELINCSE/EC No/ C.I.	Maximum level in weight %, ppm or ppb	Comments (including explanation of why impurity is in the product)

If composition is not completely listed, please indicate reason below

--

Human Safety information

If your company has conducted toxicological testing of chemicals/materials/components/products that you are supplying/that we are evaluating, **please attach robust summaries of the tests performed.**

Please provide test summary information for chemical/material/component/product as supplied in the table below.

Test	Test Protocol	Date	Result	No information available ⁹
carcinogenicity				
mutagenicity				
reproductive toxicity				
developmental toxicity				
endocrine disruption potential				
acute toxicity				
chronic toxicity				
irritation potential				
sensitization potential				
other				
other				
other				
General Comments/Notes:				

⁹ List reason for lack of information.

___ Ecotoxicological information

If your company has conducted ecotoxicological testing of chemicals/materials/components/products that you are supplying/that we are evaluating, please attach robust summaries of the tests performed.

Please provide test summary information for chemicals/materials/components/products as supplied in the table below.

Test	Test Protocol	Date	Result	No information available ¹⁰
fish toxicity				
algae toxicity				
daphnia toxicity				
biodegradability				
bioaccumulation potential				
organohalogen content	Yes, as follows:		___ No organohalogen content	
metal content	Yes, as follows:		___ No metal content	
other				
other				
other				
General Comments/Notes:				

___ Potential for human or environmental exposure to chemicals of concern

Please provide the following information related to potential for human or environmental exposure.

In what form is the product shipped? (e.g., powder, liquid, gas, etc.)

In what form is the product used by the factory (e.g., dust form, liquid emulsion form, ...)

How should excess product be disposed of?

Are there any special wastewater treatment requirements for this material?

¹⁰ List reason for lack of information.

"As an authorized representative of the company, I verify that all responses provided above are correct, based upon our currently available data."

Name

Title

Location

Date

Signature

13.11 Recommended Test Matrix for Fenix Outdoor Int. entities

Restricted Substance Test Plan for Globetrotter							
Restricted Substance	Method	Reference Restriction	Definition Limit	Fenix/Globetrotter Requirement	Ceko-Test Requirements		EU REACH & Germany Legal Requirements
					Direct Skin Contact	Indirect Skin Contact	
Alkylphenol (AP) and Alkylphenol Etheroxides (APEO)	Test: ISO 18254-1 Polymer: In house method	Common Market Requirement	AP: 3 mg/kg APEO: 3 mg/kg	NP / OP / NPEO / OPEO: 25 mg/kg (Total)	NP, OP: 10 mg/kg (Sum); NP, OP, NPEO, OPEO: 100 mg/kg (Sum)	NP, OP: 10 mg/kg (Sum); NP, OP, NPEO, OPEO: 100 mg/kg (Sum)	Textile Articles (intended to be washed): NPEO: 100 mg/kg
Polyethylene aromatic hydrocarbons (PAHs)	APR 08.2014-01 PAH	Germany 08. mark	0.1 mg/kg	Not Detected	8 PAH: 1.0 mg/kg (Each); 24 PAH: 10 mg/kg (Sum)	8 PAH: 1.0 mg/kg (Each); 24 PAH: 10 mg/kg (Sum)	8 PAH: 1.0 mg/kg (Each)
Organotin Compounds	ISO 17353	Common Market Requirement	0.02 mg/kg	Not Detected	TeBT, TPBT: 1.0 mg/kg (Each); DBT, DMT, DOT, DPhT, DPhT, MBT, MCT, MMT, MPBT, TeBT, TeBT, ToPhT, TMT, TOT, TPBT: 2.0 mg/kg (Each)	TeBT, TPBT: 1.0 mg/kg (Each); DBT, DMT, DOT, DPhT, DPhT, MBT, MCT, MMT, MPBT, TeBT, TeBT, ToPhT, TMT, TOT, TPBT: 2.0 mg/kg (Each)	Tri-substituted organotin compounds such as TeBT, TPBT, ToPhT, TMT, TOT, TPBT: 0.1% by weight or tin DBT: 0.1% by weight or tin DOT: 0.1% by weight or tin
Allergenic Disperse Dyes	DIN 54231	Common Market Requirement / LFGB §64	15 mg/kg	Not Detected	50 mg/kg (Each)	50 mg/kg (Each)	50 mg/kg
Carbocyclic Dyes	DIN 54231	Common Market Requirement	15 mg/kg	Not Detected	50 mg/kg (Each)	50 mg/kg (Each)	-
Azo Dyes	Test: EN 14362-1:2012 4-aminobiphenyl confirmation: Test: EN 14362-3:2012	EU REACH Annex XVII	5 mg/kg	Not Detected	20 mg/kg (Each)	20 mg/kg (Each)	30 mg/kg (Each)
Flame Retardants* (required if sample treated with Flame Retardants)	In-house method	EU REACH Annex XVII / EU POPs	5 mg/kg	Not Detected	Not detected	Not detected	PBB: 1000 / 1000 / 1000 mg/kg PBDE: 1000 / 1000 / 1000 mg/kg DecaBDE: 1000 mg/kg DecaBDE: 1000 mg/kg (Effective on 2nd March 2019)
Total Cadmium	Plastic coating: EN 1122; Metal: Total digestion method	EU REACH Annex XVII	5 mg/kg	Not Detected	40 mg/kg (no requirement on glass)	40 mg/kg (no requirement on glass)	Plastic, metal in jewelry: 100 mg/kg Surface contactant on article: 1000 mg/kg Plastic: not detected
Total Lead	Metal: With reference to CRIO-CH4-1001-08.3 Non-metal: With reference to CRIO-CH4-1002-08.3 Surface coating: With reference to CRIO-CH4-1003-09.1	EU REACH Annex XVII	20 mg/kg	Not Detected	50 mg/kg (no requirement on glass)	50 mg/kg (no requirement on glass)	500 mg/kg
Short Chain Chloroparaffins (SCCP) (C10 - C15)	ISO 18219: 2015	EU POPs	50 mg/kg	Not Detected	1000 mg/kg	1000 mg/kg	1500 mg/kg
Formaldehyde	Test: ISO 14184-1	Common Market Requirement	15 mg/kg	Baby (2 or under): 20 mg/kg Direct Skin Contact: 75 mg/kg Indirect Skin Contact: 300 mg/kg	75 mg/kg	300 mg/kg	1500 mg/kg (labeling requirement)
Nickel Release (direct and prolonged skin contact)	EN 12472 / EN 1811:2011 + A1:2015	EU REACH Annex XVII	0.1 µg/cm ² /week	0.5 µg/cm ² /week	-	-	Direct and prolonged contact with skin: 0.5 µg/cm ² /week; Body piercing: 0.2 µg/cm ² /week
Perfluorinated Compounds (PFCA)* (required if sample treated with stain and water repellent finishing)							
Perfluorooctane sulfonates (PFOS)					1 µg/m ²	1 µg/m ²	1 µg/m ²
Perfluorooctanoic acid (PFOA)					1 µg/m ²	1 µg/m ²	-
Heptafluorooctanoic acid (PFHxA)					0.1 mg/kg	0.1 mg/kg	-
Trifluorooctadecanoic acid (PFDoA)	CE NTS 1368	EU POPs / Common Market Requirement	Textile Coated material: 1 µg/m ² Others: 1 mg/kg	Textile Coated material: Not detected (1 µg/m ²) Others: Not detected (1 mg/kg)	0.1 mg/kg	0.1 mg/kg	-
Perfluorooctadecanoic acid (PFTrDA)					0.1 mg/kg	0.1 mg/kg	-
Heptafluorooctadecanoic acid (PFHTrDA)					0.1 mg/kg	0.1 mg/kg	-
Ammonium perfluorooctadecanoate (APFO)					-	-	-
Perfluorononanoic acid (PFNA)					0.1 mg/kg	0.1 mg/kg	-
Phthalates	ISO 14389	Common Market Requirement / EU REACH Annex XVIII / EUR0ACH 19/04	50 mg/kg	Toy or Children Article (age 3 or under): 17 phthalates: 300 mg/kg (Total) Others: 17 Phthalates: 1000 mg/kg (Total)	1000 mg/kg (Sum)	1000 mg/kg (Sum)	Toy and Children Article: DEHP+DBP+BBP+ 0.1% (Total) Toy intended for use by a child if that product can be placed in the child's mouth: DEHP+DBP+BBP+ 0.1% (Total)
Dimethyl Fumarate (required if sample treated with anti-riveting finishing)	ISO TS 16186	EU REACH Annex XVII	0.1 mg/kg	Not Detected	0.1 mg/kg	0.1 mg/kg	0.1 mg/kg
Chlorinated phenols (PCP / TeCP)	Test: LFGB § 64 BVL 882.02.3 Polymer: (polymerized) parallel; Modified § 64 LFGB BVL 882.02.3 with alkaline digestion	German Hazardous Substances Ordinance	0.05 mg/kg	Not Detected	PCP: 0.5 mg/kg TeCP: 0.5 mg/kg TeCP: 2.0 mg/kg DCP: 3.0 mg/kg MCP: 3.0 mg/kg	PCP: 0.5 mg/kg TeCP: 0.5 mg/kg TeCP: 2.0 mg/kg DCP: 3.0 mg/kg MCP: 3.0 mg/kg	PCP: 0.0 mg/kg
pH value	Test: ISO 3071	Common Market Requirement	NA	Direct Skin Contact: 4.0 - 7.5 Indirect Skin Contact: 4.0 - 9.0	4.0-7.5	4.0-9.0	-