
6 CHEMICAL RESTRICTIONS

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6.1 Motivation

The health and safety of our customers and employees as well as the protection of the environment are beeline's top priorities.

The following pages are not intended to overwhelm or alarm you. Rather, the information is provided to help you to do your part to protect the environment as well as the health and safety of the manufacturers and buyers. We believe that it is one circle; one world.

With that in mind, we decided to update our chemical restrictions according to latest European and US laws i.e. REACH.

It starts with an introduction of the different chemical groups giving you an orientation point regarding what to consider for your product. On the following pages you will find a detailed list with restricted substances, their restricted limits and test methods

Please note that the compliance of these chemical restrictions is essential to your cooperation with beeline GmbH.

Thank you for your understanding and support.

6.2 REACH

REACH aims in helping to protect the environment and the health of individuals by better and earlier identification of fundamental properties of chemical substances. REACH provides easy-to-follow and transparent information for the consumer concerning which chemical substances are found in which products. Every consumer has the right to receive an answer for all questions or concerns within 45 days. The effective date is when the consumer inquires in the shop that is dealing with the product.

This concerns all consumer products and is a part of the due diligence by law.

The basis for the additional regulations for the European market can be summed up as:

“NO DATA - NO MARKET”

We are addressing you as a supplier in regards to articles being produced for our company. It is likely that you are already familiar with this directive and thereby have noticed that it includes requirements applicable to the items supplied by your company.

For articles, the duty to inform applies according to article 33 REACH and the duty to notify, applies according to article 7.2.

That means that all marketed articles have to be checked, whether they contain more than *0.1 % of any of the so-called SVHC substances*. A first preliminary candidate list was published by the ECHA at: http://echa.europa.eu/consultations/authorisation/svhc/svhc_cons_en.asp.

We assume that you have all information required to fulfil your duties of properly informing your consumers about all articles ordered, and in the required amount of time.

We would like you to please confirm within the letter of commitment that:

- You are familiar with the requirements of REACH, and you have been dealing with the REACH directive and will continue to do so.
- You will implement these regulations.
- You will initiate and/or perform the required listing of all relevant substances.
- You will perform your duty of informing your customers as described in Article 33, and you make this information available to us upon delivery of the articles.

6.2.1 SVHC Substances

All SVHC substances from the candidate list, apart from the two arsenic oxides, can be avoided and **SHOULD NOT BE USED** for any beeline products. This will also simplify the documentation process.

Arsenic in a concentration of above 0.1% is likely found in glass. During the melting process arsenic is used to clear and brighten up the glass.

According to REACH article 33, the content of arsenic oxide of a particular item (total weight) must be advised on it is above 0.1% W/W.

6.2.2 Reach Candidate List

<http://echa.europa.eu/candidate-list-table>

6.3 Toolkit – Restricted Substances List

6.3.1 Alkylphenols (AP)/ Alkylphenol ethoxylates (APEO)

<i>Chemical Group 1</i>	<i>Alkylphenols (AP)/ Alkylphenol ethoxylates (APEO)</i>
Industrial usage	
Alkylphenol ethoxylates (APEO) belong to a group of non-ionic surfactants including NPEOs and OPEOs, which are widely used as auxiliary chemicals in different industries. They can be found in Detergents, sourcing agents, wetting agents, emulsifiers, softener, dispersing agents for dyestuffs, impregnating agents, degreasing agents for leather, finishing agents, etc.	
Toxicological background	
If NPEOs and OPEOs are released to the environment, they can be degraded back to NPs and Ops, which are toxic to aquatic life, persistent in environment and can bio accumulated in body tissue. They are similar to natural oestrogen hormones and can disturb sexual development in some organisms e.g. causing feminization of fish.	

6.3.2 Azo Dyes

<i>Chemical Group 2</i>	<i>Azo Dyes</i>
Industrial usage	
Azo dyes are dyes which contain at least one Azo bond ($-N=N-$) within the molecule. In textiles and apparels, Azo dyes are commonly used as colorant.	
Toxicological background	
Certain Azo dyes, when in a basic chemical environment or under certain enzyme conditions, can release harmful aromatic amines. Some of these aromatic amines are classified as carcinogens.	

6.3.3 Disperse Dyes (Which are classified to be allergenic)

<i>Chemical Group 3</i>	<i>Disperse Dyes</i>
Industrial usage	
Disperse dyes are generally water-insoluble colorants that are mainly used for colouring polyester, nylon and cellulose acetate textile fibres. They have extremely high light fastness for very pale colours.	
Toxicological background	
Some disperse dyes have an allergenic (sensitizing) potential to human skin and can be considered as a possible threat to health, especially if the dyes exhibit poor perspiration fastness.	

6.3.4 Dyes (which are classified to be allergenic)

Chemical Group 4	Dyes (which are classified to be allergenic)
Industrial usage	
Used as textile dyestuffs, see also Chemical Group 2 and 3.	
Toxicological background	
Although the discussions of genotoxic substances in textiles in recent years have focused on Azo dyes splitting off carcinogenic amines, the classification of carcinogenic dyes should not be limited to those Azo dyes. These textile dyes classified by their nature may also give rise to mutagenic effects.	

6.3.5 Biocides and Pesticides

Chemical Group 5	Biocides & Pesticides
Industrial usage	
Biocides are compounds used to kill or harm living organisms.	
<ul style="list-style-type: none"> • <i>Triclosan</i> can be used as disinfectant and as an antibacterial agent in textiles. • <i>Dimethylfumarate</i> is a fungicide applied to prevent mildew/mould. • <i>Pentachlorophenol</i> and its substitutes, like tetra- and trichlorophenoles, are used as fungicides, insecticides, molluscicide, algicides, disinfectants, and as anti-fouling paint ingredients, bactericides in the tanning and paper pulp industries. In fact, PCP is one of the most widely used biocides in the wood, textile, leather and paper industries. • <i>O-Phenylphenol</i> can be used for its preservative properties in leather or as a carrier in dyeing process. 	
Toxicological background	
Biocides are biologically active substances, and their toxic and biocidal nature enables them to kill or harm living things.	
<ul style="list-style-type: none"> • <i>Triclosan</i> can damage the liver, kidneys, heart and lungs, suppresses the immune system • <i>DMFu</i> is a contact allergen and is able to cause allergic reactions, even in the smallest concentration, like fierce eczemas or burn injuries. • <i>PCP</i> is toxic when inhaled, ingested or absorbed through the skin. Long term exposure results in reproductive effects, liver and kidney damage and cancer. • <i>O-Phenylphenol</i> can cause in contact with eye severe irritation and burns with possible eye damage. For some individuals, o- phenylphenol can also irritate the skin. 	

6.3.6 Chlorinated Organic Carriers (COC)

<i>Chemical Group 6</i>	<i>Chlorinated organic carriers (COC)</i>
Industrial usage	
Chlorinated Organic Carriers are used in batch dyeing of synthetic fibres, particularly polyester fibres, to promote the absorption and diffusion of disperse dyes into the fibre at relative low temperatures. These carriers are also important for dyeing blended fibres of wool and polyester as wool cannot withstand dyeing at high temperatures. Nevertheless, the carriers will remain on the textile material or partially evaporate during subsequent processes.	
Toxicological background	
Most of these carriers are toxic to humans and aquatic organisms, and some are even carcinogenic.	

6.3.7 Chlorinated Paraffins

<i>Chemical Group 7</i>	<i>Chlorinated organic paraffins</i>
Industrial usage	
Chlorinated paraffin products are polychlorinated alkenes and they are divided into three categories depending on the length of the carbon chain, short (C10–C13), medium (C14–C17), and long (C20–C30). Short chains chlorinated paraffin's (SCCP) are used primarily as an extreme pressure lubricant additive in metal working fluids. Other uses are as a flame retardant for plastics. They are also used as a plasticizer in rubber, paints, and adhesives.	
Toxicological background	
There are potential environmental risks associated with the life cycle of chlorinated paraffin. SCCPs are classified as dangerous to the environment, being very toxic to aquatic organisms, and may cause long-term adverse effects in the aquatic environment.	

6.3.8 Flame Retardants

<i>Chemical Group 8</i>	<i>Flame retardants</i>
Industrial usage	
Brominated flame retardants are used in a wide range of products like automobiles, electronics and textiles because of their stability and heat resistance.	
Toxicological background	
PBBs and PBBEs/PBDEs are as toxic as PCBs and DDT. These compounds are suspected to be carcinogenic, and their stability also makes them dangerous to wildlife. They persist once they enter the environment and food chain, and are likely to pass up the food chain.	

6.3.9 Formaldehyde

<i>Chemical Group 9</i>	<i>Formaldehyde</i>
Industrial usage	
Formaldehyde is a volatile organic compound whose chemical properties make it suitable to be used as an anti-creasing and anti-shrinking agent. It can even blend with phenol and urea to form polymeric resins. In textiles and apparels, formaldehyde may be found in stiffened and permanent pressed fabric.	
Toxicological background	
Despite its multi-function properties, formaldehyde is a highly toxic chemical which can induce irritation to mucous membrane and even cause cancer.	

6.3.10 Heavy Metals – Extractable, Soluble and Releasable

<i>Chemical Group 10</i>	<i>Heavy metals – extractable, soluble and releasable</i>
Industrial usage	
Heavy metals are found in dyestuffs and used as dye-fixing agents. They also occur in natural fibers like cotton.	
<ul style="list-style-type: none"> • <i>Cadmium</i> is a naturally occurring and abundant metal. In textiles and apparels, cadmium is usually used in plastics, dyes (usually red, orange, yellow and green) and metal accessories. Cadmium is also a well-known stabilizer for the manufacturing of polymers like PVC and PU. As cadmium is relatively hard to oxidize, it is often used as a coating agent. • <i>Chromium VI</i> is rarely found in nature, but in the chemistry world, it is a fairly good oxidizing agent. In textiles and apparels, chromium VI is usually associated with plastics, dyes and tanned leather. • <i>Cobalt dichloride</i> used as a humidity indicator in silica gel • <i>Lead</i> is a metal which can be found naturally in some ores. In textiles and apparels, lead is associated with plastics, paints, dyes and metal accessories • <i>Nickel</i> is a naturally occurring metal. In textiles and apparels, nickel is usually associated with paints, inks, trims, plastics and metal accessories. 	
Toxicological background	
Many heavy metals are bioaccumulative when absorbed by human body through perspiration and give cause for concern in health terms such as chronic toxicity, allergenic reactions and cancers.	
<ul style="list-style-type: none"> • <i>Cadmium</i> and its derivatives are often suspected to be carcinogens. • <i>Chromium VI</i> is a known carcinogen and corrosive to skin. Skin contact with certain chromium VI compounds can cause skin ulcers. 	

- *Cobalt dichloride* is a known carcinogen and can also result in reproductive impairments. Furthermore cobalt dichloride is classified as dangerous to the environment, being very toxic to aquatic organisms, and may cause long-term adverse effects in the aquatic environment.
- *Lead* and its derivatives are suspected carcinogens and lead itself can adversely affect the human central nervous system, kidney and immune system.
- *Nickel* and its derivatives are suspected carcinogens and can cause allergic reactions.

6.3.11 Heavy Metals – Total Content

<i>Chemical Group 11</i>	<i>Heavy metals – total content</i>
Industrial usage	
See Chemical group 10: Heavy metals – extractable, soluble and releasable.	
Toxicological background	
See Chemical group 10: Heavy metals – extractable, soluble and releasable.	

6.3.12 Isocyanates

<i>Chemical Group 12</i>	<i>Isocyanates</i>
Industrial usage	
Isocyanates are the raw materials that make up all polyurethane products. They react with compounds containing alcohol (hydroxyl) groups to produce polyurethane polymers, which are components of polyurethane foams, thermoplastic elastomers, spandex fibres, and polyurethane paints.	
Toxicological background	
The reactivity of isocyanates makes them harmful to living tissue. They are toxic and are known to cause asthma in humans, both through inhalation exposure and dermal contact.	

6.3.13 Organotin Compounds

<i>Chemical Group 13</i>	<i>Organotin compounds</i>
Industrial usage	
The major commercial applications of organotin compounds are as plastic stabilizers, catalytic agents, industrial biocides, antifouling paints, glass coatings, and pesticides.	
Toxicological background	
Organotin compounds are environmental pollutants and particularly harmful to aquatic environments.	

6.3.14 pH-Value

<i>Chemical Group 14</i>	<i>pH-Value</i>
Industrial usage	
The pH values in garments can be greatly affected by scouring, bleaching, after-treatment and final washing process involving the use of strong acids or alkalis.	
Toxicological background	
Human skins are slightly acidic in nature to inhibit bacteria growth. The pH value is a measure of the acidity or basicity of a solution. Solution with a pH less than 7 are said to be acid solutions with a pH greater than 7 are basic or alkaline. Textiles with a too high or low pH may cause irritation to skin when in contact.	

6.3.15 Phthalates

<i>Chemical Group 15</i>	<i>Phthalates</i>
Industrial usage	
Phthalates have diverse uses in modern commerce. One of their primary uses is as a plasticizer in flexible polyvinyl chloride (PVC) products such as blood bags and children's toys, etc. They are also used as fixatives, detergents, lubricating oils, and solvents. As a result of these diverse uses, phthalates are found in many consumer products, such as textiles, footwear, cosmetics.	
Toxicological background	
Phthalates can alter the oestrogen level in human and animal hormonal systems, resulting in serious health problems such as cancers and reproductive and developmental impairments.	

6.3.16 Perfluorinated Alkylated Substances (PFAS)

<i>Chemical Group 16</i>	<i>Perfluorinated alkylated substances (PFAS)</i>
Industrial usage	
<p>PFOS (Perfluorooctane sulfonates) related substances have been used to provide soil, oil and water resistance to textiles, apparels, leather, footwear, home furnishings and upholstery, and automotive interiors. In textile processing, PFOS substances are also used as wetting agents to improve the coverage and penetration of substances, achieve finish-on-yarn uniformity, and enhance dyeing and as a binder in non-woven fabrics. PFOS have a potential for long range environmental transport and are classified as persistent organic pollutants (POPs) under the Stockholm Convention, with poorly understood but significant health risks to wildlife and people.</p>	
Toxicological background	
<p>PFOS have a potential for long range environmental transport and are classified as persistent organic pollutants (POPs) under the Stockholm Convention, with poorly understood but significant health risks to wildlife and people.</p>	

6.3.17 Polycyclic Aromatic Hydrocarbons (PAH)

<i>Chemical Group 17</i>	<i>Polycyclic aromatic hydrocarbons (PAH)</i>
Industrial usage	
<p>PAHs are produced by the incomplete combustion of organic materials such as wood, oil and animal fats. PAHs are less water-soluble, evaporable and degradable and attach themselves to organic particulate matter. PAH contaminations have been found not only in rubber but also in various plastics.</p>	
Toxicological background	
<p>The assumption that PAHs in consumer products can be considered a possible source of risk is suggested by the fact that, for a number of these substances, carcinogenicity and mutagenicity as well as toxicity to reproduction (so called CMR properties) have been demonstrated in experiments.</p>	

6.3.18 Polymers and Polymer Auxiliaries

<i>Chemical Group 18</i>	<i>Polymers and polymer auxiliaries</i>
Industrial usage	
<ul style="list-style-type: none"> • <i>Polystyrene</i>: Buttons, beads, sequins, and other decorations made of polystyrene are commonly found to melt on exposure to dry-cleaning solvent. • <i>PVC</i> has been found to be useful in many applications including packaging, furniture, household appliances, electric/electronic appliances, automotive and many others. In order to provide the range of properties needed in finished products, PVC polymer is mixed with a number of additives such as fillers, stabilizers, lubricants, plasticizers, pigments, and flame retardants. • <i>Technical MDA</i> is mainly used as precursor to methylene diphenyl diisocyanate (MDI) for PU production and as hardener for epoxy resins. • <i>Bisphenol A (BPA)</i> is used in the production of epoxy resins and plastics. 	
Toxicological background	
<ul style="list-style-type: none"> • When <i>PVC</i> is heated or disposed of, there is a potential risk of emitting a number of degradable compounds, with the highly toxic hydrogen chloride being a particular concern. The German Federal Ministry of the Environment (Germany), recommends a phase-out of flexible PVC for those applications where safer alternatives are available. • <i>Technical MDA</i> is classified as carcinogenic Cat.1B. 	

6.3.19 Solvents (VOC – Volatile Organic Compounds)

<i>Chemical Group 19</i>	<i>Solvents – VOC – volatile organic compounds</i>
Industrial usage	
Organic solvents are widely used in industry and in our daily lives. They can be found in adhesives, paints and sprays, and are used in dry-cleaning and printing processes.	
N–N–Dimethylformamide (DMFa) is a common solvent for chemical reactions. Dimethylformamide is used in the production of acrylic fibres, polyurethane and plastics.	
Toxicological background	
<ul style="list-style-type: none"> • <i>Benzene</i> is classified as being carcinogen and toxic and can cause reproductive defects. • <i>Ethylbenzene</i>, Styrene, Xylene and Cyclohexanone are classified as being harmful. • Toluene is classified as being harmful and is under suspicion to cause reproductive defects. • <i>Trichlorethylene</i> is classified as being toxic, carcinogen and toxic to aquatic organisms. It may cause long-term adverse effects in the aquatic environment. • <i>Tetrachlorethylene</i> is under suspicion to cause cancer. It is classified as being toxic to aquatic organisms. It may cause long-term adverse effects in the aquatic environment. • <i>Methyl–Ethyl–Ketone</i> is classified as being irritant. 	

- *N-N-Dimethylformamide (DMFa)* has been linked to cancer in humans, and it is under suspicion to cause birth defects.
- *Naphthalene* is classified as being harmful and it can cause cancer. It may cause long-term adverse effects in the aquatic environment.

6.3.20 *N-Nitrosamine and N-Nitrosamine Convertible Substances*

<i>Chemical Group 18</i>	<i>Polymers and polymer auxiliaries</i>
Industrial usage	
Nitrosamines are used in the manufacture of some cosmetics, pesticides and in rubber products.	
Toxicological background	
Mandy Nitrosamines are carcinogenic.	

6.4 Restricted Substances List

6.4.1 Alkylphenols (AP)/ Alkylphenol Ethoxylates (APEO)

Chemical Group 1		Alkylphenols (AP)/ Alkylphenol ethoxylates (APEO)			
Material Scope		Test Method			
Leather, textiles, PU		Leather: ISO 18218-1:2015-11 followed by LC-MS Textile: Extraction with methanol, 1h, 70°C, ultrasonic bath acc. to ISO/FDIS 18254:2015-10, followed by LC-MS Plastics: Extraction with tetrahydrofurane, 60°C, 30min, ultrasonic bath, addition of acetonitrile after cooling down followed by LC-MS			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Nonylphenol	NP	104-40-5 11066-49-2 25154-52-3 84852-15-3 90481-04-2	<10 mg/kg	3 mg/kg
2.	Octylphenol	OP	140-66-9 1806-26-4 27193-28-8		
3.	Nonylphenol ethoxylates	NPEO	9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0	< 100 mg/kg	20 mg/kg
4.	Octylphenol ethoxylates	OPEO	9002-93-1 9036-19-5 68987-90-6		

6.4.2 Azo Dyes

Chemical Group 2		Azo Dyes			
Material Scope		Test Method			
Textiles (natural, synthetic, blended), PU, leather, feathers, dyed paper, dyed straw		Textiles: prEN ISO 14362-1:2015, 4-AAB: ISO/DIS 14362- 3:2015 (prEN ISO 14362-3:2015) Leather: ISO 17234-1:2015 and ISO 17234-2:2011			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	4-Aminobiphenyl		92-67-1	< 20 mg/kg	5 mg/kg
2.	Benzidine		92-87-5		
3.	4-Chloro-o-toluidine		95-69-2		
4.	2-Naphtylamine		91-59-8		
5.	o-Aminoazoluene		97-56-3		
6.	5-Nitro-o-toluidine		99-55-8		
7.	4-Chloroaniline		106-47-8		
8.	2,4-Diaminoanisole		615-05-4		
9.	4,4'-Diaminodiphenylmethane	4,4`-MDA	101-77-9		
10.	3,3'-Dichlorobenzidine		91-94-1		
11.	3,3'-Dimethoxybenzidine		119-90-4		
12.	3,3'-Dimethylbenzidine		119-93-7		
13.	4,4'-Methylenedi-o-toluidine		838-88-0		
14.	p-Cresidine		120-71-8		
15.	4,4'-Methylene-bis-(2-Chloroaniline)		101-14-4		
16.	4,4'-Oxydianiline		101-80-4		
17.	4,4'-Thiodianiline		139-65-1		
18.	o-Toluidine		95-53-4		
19.	2,4-Toluenediamine	2,4-TDA	95-80-7		
20.	2,4,5-Trimethylaniline		137-17-7		
21.	o-Anisidine		90-04-0		
22.	2,4 Xylidine		95-68-1		
23.	2,6 Xylidine		87-62-7		
24.	4-Aminoazobenzene	4-AAB	60-09-3		

6.4.3 Disperse Dyes (Which are classified to be allergenic dyes)

Chemical Group 3		Disperse dyes			
Material Scope		Test Method			
Textiles (synthetic & blended)		DIN 54231:2005, weight of sample taken 0,5g, extraction with methanol, 70°C, 30min, ultrasonic bath			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Disperse Blue 1		2475-45-8	< 5mg/l	1 mg/l
2.	Disperse Yellow 3		2832-40-8		
3.	Disperse Blue 3		2475-46-9		
4.	Disperse Blue 7		3179-90-6		
5.	Disperse Blue 26		3860-63-7		
6.	Disperse Blue 35		56524-76-7 56524-77-7		
7.	Disperse Blue 102		12222-97-8		
8.	Disperse Blue 106		12223-01-7		
9.	Disperse Blue 124		61951-51-7		
10.	Disperse Brown 1		23355-64-8		
11.	Disperse Orange 1		2581-69-3		
12.	Disperse Orange 3		730-40-5		
13.	Disperse Orange 37/76/59		13301-61-6		
14.	Disperse Orange 149		85136-74-9		
15.	Disperse Red 1		2872-52-8		
16.	Disperse Red 11		2872-48-2		
17.	Disperse Red 17		3179-89-3		
18.	Disperse Yellow 1		119-15-3		
19.	Disperse Yellow 9		6373-73-5		
20.	Disperse Yellow 23		6250-23-3		
21.	Disperse Yellow 39		12236-29-2		
22.	Disperse Yellow 49		54824-37-2		

6.4.4 Carcinogenic Dyes

Chemical Group 4		Carcinogenic Dyes			
Material Scope		Test Method			
Textiles (synthetic & blended)		DIN 54231:2005, weight of sample taken 0,5g, extraction with methanol, 70°C, 30min, ultrasonic bath			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Acid Red 26		3761-53-3	< 5mg/l	1 mg/l
2.	Basic Red 9		569-61-9		
3.	Basic Violet 14		632-99-5		
4.	Direct Red 28		573-58-0		
5.	Direct Black 38		1937-37-7		
6.	Direct Blue 6		2602-46-2		
7.	Disperse Blue 1		2475-45-8		
8.	Disperse Yellow 3		2832-40-8		
9.	Disperse Orange 11		82-28-0		
10.	Disperse Navy Blue Component 1: Component 2:		118685-33-9	< 5mg/l	2 mg/l
11.	Basic Violet 3		548-62-9	< 250 mg/kg	50 mg/kg
12.	Basic Blue 26		2580-56-5		
13.	Basic Green 4 (malachite green chloride)		569-64-2		
14.	Basic Green 4 (malachite green oxalate)		2437-29-8		
15.	Basic Green 4 (malachite green)		10309-95-2		

6.4.5 Biocides & Pesticides

Chemical Group 5		Biocides					
Material Scope		Test Method					
Leather, paper, wood, straw		<p>Triclosan: Following ISO 13365 extraction with acetonitrile, 1h, RT, ultrasonic bath followed by GC-MS</p> <p>DMFu: CEN ISO/TS 16186:2012; DIN SPEC 53280:2012, extraction with acetone, 1h, 60°C, ultrasonic bath, followed by GC-MS or LC-MS</p> <p>BAC: Extraction with methanol, quantification by LC-MS/MS</p> <p>CPs: ISO 17070:2015</p> <p>OPPs: ISO 13365:2011, extraction with acetonitrile, 1h, RT, ultrasonic bath followed by GC-MS</p> <p>Pesticides: Reference to US EPA method and analysis by GC-MS/ECD or LC-MS-MS</p>					
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit		
1.	Triclosan		3380-34-5	Usage Ban < 10 mg/kg	1 mg/kg		
2.	Dimethylfumarate	DMFu	624-49-7	Usage Ban <0.1 mg/kg	0.03 mg/kg		
3.	Benzalkonium chloride	BAC	63449-41-2	Usage Ban <1 mg/kg	1 mg/kg		
4.	Pentachlorophenol	PCP	87-86-5	< 0.5mg/kg	0,05 mg/kg		
5.	Tetrachlorophenols	2,3,4,6-TeCP 2,3,5,6-TeCP 2,3,4,5-TeCP	58-90-2 935-95-5 4901-51-3				
6.	Trichlorophenols	2,3,4-TriCP 2,3,5-TriCP 2,3,6-TriCP 2,4,5-TriCP 2,4,6-TriCP 3,4,5-TriCP	15950-66-0 933-78-8 933-75-5 95-95-4 88-06-2 609-19-8				
7.	Dichlorophenols	2,3-DiCP 2,4-DiCP 2,5-DiCP 2,6-DiCP 3,4-DiCP 3,5-DiCP	576-24-9 120-83-2 583-78-8 87-65-0 95-77-2 591-35-5				
8.	Monochlorophenols	2-CP 3-CP 4-CP	95-57-8 108-43-0 106-48-9				
9.	o-Phenylphenol	OPP	90-43-7			< 50 mg/kg	0,5 mg/kg

10	2,4,5-Trichlorophen- oxyacetic acid	2,4,5-T	93-76-5		
11	2,4-Dichlorophenoxyacetic acid	2,4-D	94-75-7		
12	Acetamiprid		135410-20-7 160430-64-8		
13	Aldicarb		116-06-3		
14	Azinophosmethyl		86-50-0		
15	Azinophosethyl		2642-71-9		
16	Aldrin		309-00-2		
17	Bromophos-ethyl		4824-78-6		
18	Captafol		2425-06-1		
19	Carbaryl		63-25-2		
20	Chlordane		57-74-9		
21	Chlordimeform		6164-98-3		
22	Chlorfenvinphos		470-90-6		
23	Clothianidin		210880-92-5		
24	Coumaphos		56-72-4		
25	Cyfluthrin		68359-37-5		
26	Cyhalothrin		91465-08-6		
27	Cypermethrin		52315-07-8		
28	1,2,4-Tributylphos- phorotrithioate	DEF	78-48-8		
29	Deltamethrin		52918-63-5		
30	Mitotan, 1,1-Dichlor- 2-(2- chlorphenyl)- 2-(4-chlorphe- nyl)ethane	DDD	53-19-0 72- 54-8		
31	1-Chlor-4-[2,2-dichlor-1-(4- chlorphenyl)ethenyl]ben- zene	DDE	3424-82-6, 72-55-9		
32	1,1,1-Trichlor-2,2-bis-(4- chlorophenyl)ethane	DDT	50-29-3, 789- 02-6		
33	Diazinon		333-41-5		
34	Dichlorprop		120-36-5		
35	Dicrotophos		141-66-2		
36	Dieldrin		60-57-1		
37	Dimethoat		60-51-5		
38	Dinoseb, Salze und Acetat		88-85-7 et al		
39	Dinotefuran		165252-70-0		
40	Endosulfan, α-		959-98-8		
41	Endosulfan, β-		33213-65-9		
42	Endrin		72-20-8		
43	Esfenvalerat		66230-04-4		
44	Fenvalerat		51630-58-1		
45	Heptachlor		76-44-8		
46	Heptachlorepoxyd		1024-57-3		
47	Hexachlorbenzol		118-74-1		
48	Hexachlorcyclohexan, α-		319-84-6		
49	Hexachlorcyclohexan, β-		319-85-7		
50	Hexachlorcyclohexan, δ-		319-86-8		
51	Imidacloprid		105827-78-9 138261-41-3		
52	Isodrin		465-73-6		
53	Kelevan		4234-79-1		
54	Kepon		143-50-0		
55	Lindan		58-89-9		
56	Malathion		121-75-5		
57	2-Methyl-4-chlorophen- oxyacetic acid	MCPA	94-74-6		
58	(2-Methyl-4-Chlorophen- oxy)butyric acid	MCPB	94-81-5		

For baby
=<0.5 mg/kg

Other
= 1 mg/kg

0.2 mg/kg

59	Mecoprop		93-65-2	<p>For baby =<0.5 mg/kg</p> <p>Other = 1 mg/kg</p>	0.2 mg/kg
60	Metamidophos		10265-92-6		
61	Methoxychlor		72-43-5		
62	Mirex		2385-85-5		
63	Monocrotophos		6923-22-4		
64	Nitenpyram		150824-47-8		
65	Parathion		56-38-2		
66	Parathion-methyl		298-00-0		
67	Perthan		72-56-0		
68	Phosdrin/Mevinphos		7786-34-7		
69	Propethamphos		31218-83-4		
70	Profenophos		41198-08-7		
71	Quinalphos		13593-03-8		
72	Stroban		8001-50-1		
73	Telodrin		297-78-9		
74	Thiacloprid		111988-49-9		
75	Thiamethoxam		153719-23-4		
76	Toxaphen (Camphechlor)		8001-35-2		
77	Trifluralin		1582-09-8		

6.4.6 Chlorinated Organic Carriers (COC)

Chemical Group 6		Chlorinated organic carriers (COC)			
Material Scope		Test Method			
Synthetic textile (Polyester)		DIN 54232:2010, weight of sample taken 2g, extraction with dichloromethane, 30min, RT followed by GC-MS			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Chlorobenzene		108-90-7	<1.0mg/kg (total)	0.1 mg/kg
2.	Dichlorobenzenes	1,2-DiCB 1,3-DiCB 1,4-DiCB	95-50-1 541-73-1 106-46-7		
3.	Trichlorobenzenes	1,2,3-TriCB 1,2,4-TriCB 1,2,5-TriCB	87-61-6 120-82-1 108-70-3		
4.	Tetrachlorobenzenes	1,2,3,4-TeCB 1,2,3,5-TeCB 1,2,4,5-TeCB	634-66-2 634-90-2 95-94-3		
5.	Pentachlorobenzenes	PCB	608-93-5		
6.	Hexachlorobenzenes	HCB	118-74-1		
7.	Monochlorotolulenes	2-CT 3-CT 4-CT	95-49-8 108-41-8 106-43-4		
8.	Diochlorotolulenes	2,3-DICT 2,4-DICT 2,5-DICT 2,6-DICT 3,4-DICT 3,5-DICT	32768-54-0 95-73-8 19398-61-9 118-69-4 95-75-0 25186-47-4		
9.	Trichlorotolulenes	2,3,6-TriCT 2,4,5-TriCT α,α,α -TriCT	2077-46-5 6639-30-1 98-07-7		
10.	Tetrachlorotolulenes	$\alpha,\alpha,\alpha,4$ -TetraCT $\alpha,\alpha,\alpha,2$ -TetraCT 2,6, α,α -TetraCT	5216-25-1 2136-89-2 81-19-6		
11.	Pentachlorotolulenes	PCT	877-11-2		

6.4.7 Chlorinated Paraffins

Chemical Group 7		Chlorinated paraffins (short-chain)			
Material Scope		Test Method			
Leather, plastics, rubber		Leather: ISO 18219:2015, weight of sample taken 0,5g, extraction with n-hexane, 60°C, 1h, ultrasonic bath, analysis by LC-MS/MS			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Short chained chlorinated paraffin's (C10 - C13)	SCCP	85535-84-8	< 100 mg/kg	30 mg/kg
2.	Medium chained chlorinated paraffin's (C14 - C17)	MCCP	85535-85-9	< 1000 mg/kg	100 mg/kg

6.4.8 Flame Retardants

Chemical Group 8		Flame retardants			
Material Scope		Test Method			
Textiles and PU with functional coating, plastics from electronics		No.1 to No.13: Solvent extraction followed by GC-MS or LC-MS Boric Acid: Acid digestion followed by ICP analysis TPP/TCP: Extraction with toluene, 2h, 100°C followed by GC-MS			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Tris-(2,3-dibromopropyl)-phosphate	TRIS	126-72-7	Usage ban < 10 mg/kg	10 mg/kg
2.	Tris(aziridinyl)-phosphineoxide	TEPA	545-55-1		
3.	Polybromobiphenyls	PBB	59536-65-1		
4.	Bis(2,3-dibromopropylether) of tetrabromobisphenol	BDBPT	21850-44-2		
5.	Bis(2,3-dibromopropyl)phosphate	BBP	5412-25-9		
6.	Octabromodiphenyl Ether	OctaBDE	32536-52-0		
7.	Pentabromodiphenyl Ether	PentaBDE	32534-81-9		
8.	Decabromodiphenyl Ether	DecaBDE	1163-19-5		
9.	Hexabromocyclododecane	HBCDD	25637-99-4 3194-55-6		
10.	Tris-(2-chloroethyl)-phosphate	TCEP	115-96-8		
11.	Tetrabromobisphenol A	TBBPA	79-94-7		
12.	Tris-(1,3-dichloro-propyl)-phosphate	TDCP	13674-87-8		
13.	2,2-Bis(bromomethyl)-1,3-propanediol	BBMP	3296-90-0		
14.	Boric Acid		10043-35-3 11113-50-1	< 1000mg/kg	50 mg/kg
15.	Triphenylphosphate	TPP	115-86-6	Usage ban < 10 mg/kg	10 mg/kg
16.	Tricresylphosphate (all 10 isomers)	Various	1330-78-5	Usage ban < 10 mg/kg	10 mg/kg

6.4.9 Formaldehyde

Chemical Group 9		Formaldehyde				
Material Scope		Test Method				
Leather, textile, PU, wood, paper		Textile, wood, paper: ISO 14184-01:2014, weight of sample taken 1g, extraction with water, 1h, 40°C, sealed vessel followed by UV/VIS (412nm) analysis Leather/other: EN ISO 17226-01:2008, weight of sample taken 2g, extraction with detergent solution, 1h, 40°C, sealed vessel followed by HPLC-UV (360nm) analysis				
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit		Detection Limit
1.	Formaldehyde		50-00-0	Textiles: Baby wear	16 mg/kg	5 mg/kg
				Textiles with direct skin contact	75 mg/kg	
				Textiles without direct skin contact	300 mg/kg	
				Leather & shoes: children <36 months	50 mg/kg	
				Leather & shoes	150 mg/kg	

6.4.10 Heavy Metals

Chemical Group 10- Part 1		Heavy metals - extractable				
Material Scope		Test Method				
Textile, trims, leather *) No requirement for accessories made from metallic materials		Textiles, trims: Extraction with acid perspiration according to DIN EN ISO 105-E04 Leather: EN ISO 17075 after aging, aging conditions: 24 H/80°C/5% r.H., closed static drying oven, no fresh air supply, no ventilator				
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit		Detection Limit
Applicable for textiles and trims						
				For baby wear	others	
1.	Antimony	Sb	7440-36-0	< 30 mg/kg	< 30 mg/kg	0.5 mg/kg
2.	Arsenic	As	7440-38-2	< 0.2 mg/kg	< 1.0 mg/kg	0.02 mg/kg
3.	Cadmium	Cd	7440-43-9	< 0.1 mg/kg	< 0.1 mg/kg	0.02 mg/kg
4.	Chromium	Cr	7440-47-3	< 1.0 mg/kg	< 2.0 mg/kg	0.1 mg/kg
5.	Cobalt	Co	7440-48-4	< 1.0 mg/kg	< 4.0 mg/kg	0.1 mg/kg
6.	Copper *)	Cu	7440-50-8	< 25 mg/kg*	< 50 mg/kg*	5 mg/kg
7.	Lead	Pb	7439-92-1	< 0.2 mg/kg	< 1.0 mg/kg	0.1 mg/kg
8.	Mercury	Hg	7439-97-6	< 0.02 mg/kg	< 0.02 mg/kg	0.005 mg/kg
9.	Nickel	Ni	7440-02-0	< 1.0 mg/kg	< 4.0 mg/kg	0.1 mg/kg
Applicable for Leather items						
1.	Chromium VI	Cr(VI)	18540-29-9	Usage ban: <3 mg/kg		1 mg/kg

Chemical Group 10-Part 2			Heavy metals -soluble						
Material Scope			Test Method						
All materials of toys			Toys: Extraction with simulated gastric solution acc. to EN 71-3:2014						
No.	Restricted Sub-stance	Short -cut	Cas No.	Restricted Limit (mg/lg)			Detection Limit (mg/kg)		
Applicable for toys									
				Cat.1	Cat.2	Cat.3	Cat.1	Cat.2	Cat.3
				Solid materi-als which may leave resi-dues on the hands	Fluid or viscous materials which can be in-gested or have skin contact	Solid ma-terials which can be in-gested by biting, tooth scraping, sucking or licking	Solid materi-als which may leave resi-dues on the hands	Fluid or viscous materials which can be in-gested or have skin contact	Solid mate-rials which can be in-gested by biting, tooth scraping, sucking or licking
1.	Aluminium	Al	7429-90-5	5625	1406	70000	50	50	50
2.	Antimony	Sb	7440-36-0	45	11.3	560	1	1	10
3.	Arsenic	As	7440-38-2	3.8	0.9	47	0.5	0.5	10
4.	Barium	Ba	7440-39-3	1500	375	18750	50	50	50
5.	Boron	B	7440-42-8	1200	300	15000	50	50	50
6.	Cadmium	Cd	7440-43-9	1.3	0.3	17	0.1	0.1	5
7.	Chromium (III)	Cr (III)	7440-47-3	37.5	9.4	460	1	1	1
8.	Chromium (VI)	Cr (VI)	18540-29-9	0.02	0.005	0.2	0.018	0.005	0.18
9.	Cobalt	Co	7440-48-4	10.5	2.6	130	0.5	0.5	10
10.	Copper	Cu	7440-50-8	622.5	156	7700	50	50	50
11.	Lead	Pb	7439-92-1	13.5	3.4	160	0.5	0.5	10
12.	Manganese	Mn	7439-96-5	1200	300	15000	50	50	50
13.	Mercury	Hg	7439-97-6	7.5	1.9	94	0.5	0.5	10
14.	Nickel	Ni	7440-02-0	75	18.8	930	10	10	10
15.	Selenium	Se	7782-49-2	37.5	9.4	460	5	5	10
16.	Strontium	Sr	7440-24-6	4500	1125	56000	50	50	50
17.	Tin	Sn	7440-31-5	15000	3750	180000	0.36	0.08	4.9
18.	Organic Tin	Sn	Various	0.9	0.2	12	--	--	--
19.	Zinc	Zn	7440-66-6	3750	938	46000	50	50	50

Chemical Group 10-Parts 3			Heavy metals – soluble		
Material Scope			Test Method		
Various components of metal or plastic, Sunglasses (ref. to EN 12312-1)			Extraction with simulated gastric solution acc. to EN 71-3:1995		
No.	Restricted Substance	Short-cut	Cas No.	Restricted Limit	Detection Limit
Applicable for garment components					
1.	Antimony	Sb	7440-36-0	< 60 mg/kg	5 mg/kg
2.	Arsenic	As	7440-38-2	< 25 mg/kg	2.5 mg/kg
3.	Barium	Ba	7440-39-3	< 1000 mg/kg	5 mg/kg
4.	Cadmium	Cd	7440-43-9	< 75 mg/kg	5 mg/kg
5.	Chromium	Cr	7440-47-3	< 60 mg/kg	5 mg/kg
6.	Lead	Pb	7439-92-1	< 90 mg/kg	5 mg/kg
7.	Mercury	Hg	7439-97-6	< 60 mg/kg	5 mg/kg
8.	Selenium	Se	7782-49-2	< 500 mg/kg	5 mg/kg

Chemical Group 10- Part 4			Heavy metals –releasable		
Material Scope			Test Method		
Applicable for all Metal Items (e.g. earrings, piercings, necklaces, bracelets, chains, anklets, rings, watch straps, buttons, zippers, spectacle frames)			Nickel indication: Rubbing test by CR 12471		
Metal – In metal products or parts of products intended to be used for body piercings			Nickel release by EN 1811:2015		
Metal – In metal products or parts of products in direct and prolonged skin contact			Abrasion of coated items by EN 12472		
Metal – Spectacle frames and sunglasses intended to come into close and prolonged contact with the skin			Nickel release according to EN 16128 Abrasion of coated items by EN 12472		
No.	Restricted Substance	Short-cut	Cas No.	Restricted Limit	Detection Limit
1.	Nickel	Ni	7440-02-0	Body piercings	< 0.11 µg/cm ² /week
				Direct and prolonged skin contact	< 0.28 µg/cm ² /week
				Spectacle frames and sunglasses	<0.5 µg/cm ² /week
					0.10 µg/cm ² /week

6.4.11 Heavy Metals – Total Content

Chemical Group 11			Heavy metals – total content			
Material Scope			Test Method			
Cadmium/Lead: all accessible components Chromium: Leather			Cadmium: EN 1122:2001 Chromium: DIN EN ISO 17072-2 Lead: DIN EN 14602:2012, weight of sample taken 1g, acid or microwave digestion followed by ICP or AAS Cobalt dichloride: Microwave digestion followed by ICP/MS, calculated from the cobalt content Packaging materials: IEC 62321			
No.	Restricted Substance	Short-cut	Cas No.	Restricted Limit		Detection Limit
1.	Cadmium	Cd	7440-43-9	metal, PU, leather, wood, coatings, etc.	40 mg/kg	3 mg/kg
				polymer materials/plastics: e.g. beads, pearls, ceramic, rubber etc.	Usage ban < 10 mg/kg	
				Rhinestones, glass	Exempt	
2.	Lead	Pb	7439-92-1	Metal, textiles, PU, plastic, leather, coatings, rubber, ceramic, packaging etc.	< 90mg/kg	3 mg/kg
				Rhinestones, glass	500 mg/kg	
				Rhinestones, glass in KIDS items	100 mg/kg	
3.	Chromium	Cr	7440-47-3	Chromium free tanned leather	< 1000mg/kg	1 mg/kg
4.	Cobalt dichloride	Co	7646-79-9	Only for desiccants	usage ban < 1 mg/kg	1 mg/kg

6.4.12 Isocyanates

Chemical Group 12		Isocyanates				
Material Scope		Test Method				
Plastics, PU		DIN EN 13130-8				
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit	
1.	Hexamethylene diisocyanate	HDI	822-06-0	< 50 mg/kg	5 mg/kg	
2.	Isophorone diisocyanate	IPDI	4098-71-9	< 20 mg/kg		
3.	2,4-Toluene diisocyanate	TDI	584-84-9	< 5 mg/kg		
4.	2,6-Toluene diisocyanate	TDI	91-08-7	< 5 mg/kg		
5.	2,2'-Diphenylmethane diisocyanate	2,2'-MDI	2536-05-2	< 5 mg/kg		
6.	2,4'-Diphenylmethane diisocyanate	2,4'-MDI	5873-54-1	< 5 mg/kg		
7.	4,4'-Diphenylmethane diisocyanate	4,4'-MDI	101-68-8	< 5 mg/kg		
8.	Tetramethylxylene diisocyanate	TMXD	2778-42-9	< 20 mg/kg		

6.4.13 Organotin Compounds

Chemical Group 13		Organotin compounds				
Material Scope		Test Method				
Plastics, synthetic fibres, coatings, prints		CEN ISO/TS 16179:2012-12; DIN SPEC 91179:2012-12, weight of sample taken 1g, extraction with methanol/ethanol (80/20), 1h, 60°C, ultrasonic bath followed by GC-MS				
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit		Detection Limit
1.	Monobutyltin	MBT	78763-54-9	Baby: < 0.5 mg/kg Others: < 1 mg/kg		0.05 mg/kg
2.	Monooctyltin	MOT	3091-25-6			
3.	Monomethyltin	MMT	23001-26-5			
4.	Monophenyltin	MPhT	2406-68-0			
5.	Diphenyltin	DPhT	1011-95-6			
6.	Dibutyltin	DBT	14488-53-0			
7.	Diocetyl tin	DOT	15231-44-4 3542-36-7			
8.	Dimethyltin	DMT	753-73-1			
9.	Tributyltin	TBT	56573-85-4			
10.	Triphenyltin	TPhT	668-34-8			
11.	Tricyclohexyltin	TCyHT	3091-32-5			
12.	Triocetyl tin	TOT	2587-76-0			
13.	Tripropyltin	TPT	2279-76-7			
14.	Trimethyltin	TMT	1066-45-1			
15.	Tetrabutyltin	TebT	1461-25-2			

6.4.14 pH-Value

Chemical Group 14		pH-Value				
Material Scope		Test Method				
Textile, PU, leather		Textiles: ISO 3071 (extraction with potassium chloride solution) Leather: ISO 4045				
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit		Detection Limit
1.	pH-Value			baby articles and articles with direct skin contact	4.0 - 7.5	
				articles without direct skin contact	4.0 - 9.0	

6.4.15 Phthalates

Chemical Group 15		Phthalates			
Material Scope		Test Method			
Plastics, rubber, synthetic fibres, coatings		Textiles: ISO 14389 Other: Extraction with tetrahydrofuran (THF) followed by precipitation with acetonitrile, determination with GC-MS TPP / TCP: Extraction with toluene, 2h, 100°C followed by GC-MS			
No.	Restricted Substance	Short-cut	Cas No.	Restricted Limit	Detection Limit
1.	Di-iso-butyl phthalate	DIBP	84-69-5	The sum of 23 Phthalates may not exceed the limit < 1000 mg/kg	50 mg/kg
2.	Di-iso-nonyl phthalate	DINP	28553-12-0		
3.	Di-(2-ethyl-hexyl) phthalate	DEHP	117-81-7		
4.	Di-n-octyl phthalate	DNOP	117-84-0		
5.	Di-iso-decyl phthalate	DIDP	26761-40-0		
6.	Butyl-benzyl phthalate	BBP	85-68-7		
7.	Di-butyl phthalate]	DBP	84-74-2		
8.	Di-(C7-C11 alkyl) phthalate Linear and branched	DHNUP	68515-42-4		
9.	Di-(C6-C8 alkyl) phthalate branched	DIHP	71888-89-6		
10.	Bis-(2-methoxy-ethyl) phthalate	BMEP	117-82-8		
11.	Di-n-hexyl phthalate	DHP	84-75-3		
12.	1,2-Benzenedicarboxylic acid, di-pentylester, branched and linear		84777-06-0		
13.	Di-iso-pentyl phthalate	DIPP	605-50-5		
14.	N-pentyl-iso-pentyl phthalate	PIPP	776297-69-9		
15.	Di-pentyl phthalate	DPP	131-18-0		
16.	Dicyclohexylphthalate	DCHP	84-61-7		
17.	Dinonylphthalate	DNP	84-76-4		
18.	Diethylphthalate	DEP	84-66-2		
19.	Di-n-propylphthalate	DPRP	131-16-8		
20.	Di-iso-octylphthalate	DIOP	27554-26-3		
21.	1,2-Benzenedicarboxylic acid -dihexylester branched & linear		68515-50-4		
22.	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters		68513-51-5		
23.	1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate		68648-93-1		
Others					
24.	Triphenyl phosphate	TPP	115-86-6	Usage Ban < 10 mg/kg	10 mg/kg
25.	Tricresyl phosphate (all 10 isomers)	TCP	1339-78-5	Usage Ban < 10 mg/kg	10 mg/kg

6.4.16 Perfluorinated Alkylated Substances

Chemical Group 16		Perfluorinated alkylated substances			
Material scope		Test Method			
Textile with functional coating (Water repellent finishes)		CEN/TS 15968, solvent extraction followed by LC-MS			
No.	Restricted Substance	Short-cut	Cas No.	Restricted Limit	Detection limit
1.	Perfluoro-octane sulfonic acid	PFOS	2795-39-3 56773-42-3 1763-23-1	Each < 1µg/m ²	1µg/m ²
2.	Perfluoro-octanoic acid	PFOA	335-67-1		
3.	Perfluorinated Compounds	PFC	various		

6.4.17 Polycyclic Aromatic Hydrocarbons (PAH)

Chemical Group 17		Polycyclic aromatic hydrocarbons (PAH)		
Material Scope		Test Method		
Plastics, black rubber		AFPS GS 2014:01: Weight of sample taken 0.5g, extraction with toluene, 1h, 60°C, ultrasonic bath, column clean up followed by GC-MS analysis		
No.	Restricted Substance	Cas No.	Restricted Limit	Detection Limit
1.	Benzo(a)pyrene	50-32-8	<p>Category 1: Materials intended to be placed in the mouth (e.g. piercings) < 0,2 mg/kg each PAH < 1 mg/kg for the sum of 18 PAH</p> <p>Category 2: Materials with foreseeable prolonged skin contact (> 30 sec.) or repeated short term skin contact (e.g. accessories, sunglasses KIDS & Adult, childcare articles) < 0.5 mg/kg each PAH < 10 mg/kg for the sum of 18 PAH</p> <p>Category 3: Materials with foreseeable short term skin contact (sticker, key rings) < 1 mg/kg each PAH < 20 mg/kg for the sum of 18 PAH</p> <p>Toys with prolonged skin contact: < 0.2 mg/kg for each PAH < 5 mg/kg for the sum of 18 PAH</p>	0.2 mg/kg
2.	Benzo(e)pyrene	192-97-2		
3.	Benzo(a)anthracene	56-55-3		
4.	Chrysene	218-01-9		
5.	Benzo(b)fluoranthene	205-99-2		
6.	Benzo(k)fluoranthene	207-08-9		
7.	Dibenzo(a,h)anthracene	53-70-3		
8.	Benzo(i)fluoranthene	205-82-3		
9.	Indeno(1,2,3-c,d)pyrene	193-39-5		
10.	Benzo(g,h,i)perylene	191-24-2		
11.	Acenaphthylene	208-96-8		
12.	Acenaphthene	83-32-9		
13.	Fluorene	86-73-7		
14.	Phenanthrene	85-01-8		
15.	Anthracene	120-12-7		
16.	Fluoranthene	206-44-0		
17.	Pyrene	129-00-0		
18.	Naphtalene	91-20-3		

6.4.18 Polysterene and Polymer Auxiliaries

Chemical Group 18		Polysterne and polymer auxiliaries				
Material Scope		Test Method				
Plastics, rubber		Polystyrene: ISO 3175-1 PVC (Polyvinyl chloride): Beilstein test as pre-test, confirmation of pre-fail with Infrared Spectroscopy (FTIR) Technical MDA: Extraction with ethyl acetate, analysis by GC-MS or LC-MS BPA (Bisphenol A): Solvent extraction followed by LC-MS/MS Latex (Natural Rubber): Test kit - Protin-Latex TM from G-Biosciences or comparable test kit for Latex				
No.	Restricted Substance	Short-cut	Cas No.	Restricted Limit		Detection Limit
1.	Polystyrene		9003-53-6	For all dry cleanable items	Usage ban	
2.	Polyvinyl chloride	PVC	9002-86-2	Forbidden in all items and packaging		
3.	Formaldehyde, oligomeric reaction products with aniline (technical MDA)		25214-70-4	20 mg/kg		20 mg/kg
4.	Bisphenol A	BPA	80-05-7	For all food contact products (e.g. lunch boxes, drinking bottles)	Usage ban < 0.1 mg/kg	0.1 mg/kg
5.	Natural rubber latex	NRL	9006-04-6	Usage ban		

6.4.19 Solvents (VOC – Volatile Organic Compounds)

Chemical Group 19		Solvents – Volatile Organic Compounds (VOC)			
Material Scope		Test Method			
PU		No. 1 to No. 22: Headspace at 120 °C, 45 min, GC-MS analysis No. 23 DMFa (N,N-Dimethyl formamide): Extraction with methanol followed by GC-MS, reference to ISO/TS 16189			
No.	Restricted Substance	Shortcut	Cas No.	Restricted Limit	Detection Limit
1.	Benzene		71-43-2	< 1 mg/kg	1 mg/kg
2.	Ethylbenzene		100-41-4	< 20 mg/kg	10 mg/kg
3.	Styrene		100-42-5	< 10 mg/kg	10 mg/kg
4.	Toluene		108-88-3	< 5 mg/kg	5 mg/kg
5.	Xylene		1330-20-7	< 20 mg/kg	10 mg/kg
6.	Orthoxylene		95-47-6	< 20 mg/kg	10 mg/kg
7.	Metaxylene		108-38-3	< 20 mg/kg	10 mg/kg
8.	Paraxylene		106-42-3	< 20 mg/kg	10 mg/kg
9.	o-Cresol		95-48-7	< 20 mg/kg	10 mg/kg
10.	p-Cresol		106-44-5	< 20 mg/kg	10 mg/kg
11.	m-Cresol		108-39-4	< 20 mg/kg	10 mg/kg
12.	Trichloroethylene		79-01-6	< 40 mg/kg	10 mg/kg
13.	Tetrachloroethylene		127-18-4	< 5 mg/kg	1 mg/kg
14.	Cyclohexanone		108-94-1	< 100 mg/kg	20 mg/kg
15.	Methyl-Ethyl-Ketone	MEK	78-93-3	< 100 mg/kg	10 mg/kg
16.	Naphtalene		91-20-3	< 10 mg/kg	10 mg/kg
17.	Acetophenone		98-86-2	< 20mg/kg	10 mg/kg
18.	2-Phenyl-2-propanole		617-94-7	< 20mg/kg	10 mg/kg
19.	2-Ethoxyethanol		110-80-5	<50 mg/kg	10 mg/kg
20.	2-Ethoxyethyl acetate		111-15-9	<50 mg/kg	10 mg/kg
21.	1,2-Dimethoxyethane	DME	110-71-4	<50 mg/kg	10 mg/kg
22.	2-Methoxyethanol		109-86-4	<50 mg/kg	10 mg/kg
23.	2-Methoxyethyl acetate		110-49-6	<50 mg/kg	10 mg/kg
24.	2-Methoxypropyl acetate		70657-70-4	<50 mg/kg	10 mg/kg
25.	Triethylene glycol dimethyl ether	TEGDME	112-49-2	<50 mg/kg	10 mg/kg
26.	Methylene chloride		75-09-2	< 5 mg/kg	1 mg/kg
27.	2-Ethoxyethylacetate		111-15-9	< 1000 mg/kg	100 mg/kg
28.	1-Methyl-2-pyrrolidone		872-50-4		
29.	1,2,3-Trichloropropane		96-18-4		
30.	1,2-Dichloroethane		107-06-2		
31.	Bis-(2-methoxythyl) ether		111-96-6		
32.	N,N-dimethyl acetamide	DMAC	127-19-5		
33.	Formamide		75-12-7		
34.	N-N-Dimethylformamide	DMFa	68-12-2	< 300 mg/kg	10 mg/kg

6.4.20 N-Nitrosamine and N-Nitrosamine Convertible Substances

Chemical Group 20		N-Nitrosamine and N-Nitrosamine convertible substances				
Material Scope		Test Method				
Rubber		a) for silencer e.g. teethers and baby soother made from elastomer/rubber: EN 12868, solvent extraction followed by GC-TEA or GC-MS or LC-MS/MS, b) for toys made of elastomer/rubber materials e.g. balloons: EN 71-12				
No.	Restricted Substance	Short-cut	Cas No.	Restricted limit	Detection Limit	
1.	N-nitrosodimethylamine		62-75-9	For a) silencer (e.g. teethers) and baby soother from elastomer or rubber b) toys from natural or synthetic rubber (e.g. balloons) for children <36months, which are intended to take into mouth	< 0.01 mg/kg	0.01 mg/kg
2.	N-nitrosodiethylamine		55-18-5			
3.	N-nitrosodipropylamine		621-64-7			
4.	N-nitrosodibutylamine		924-16-3			
5.	N-nitrosomorpholine		59-89-2			
6.	N-nitrosopiperidine		100-75-4			
7.	N-nitrosopyrrolidine		930-55-2			
8.	N-nitrosodibenzylamine		5336-53-8			
9.	N-nitroso-methyl-N-phenylamine		614-00-6			
10.	N-nitroso-ethyl-N-phenylamine		612-64-6			
11.	N-Nitrosamine convertible substances		various	< 0.1 mg/kg	0.1 mg/kg	

6.5 Chemical Restrictions – Contact

In case of occurring questions or suggestions, please feel free to contact us:

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6.6 Chemical Restrictions – Commitment

V05 – revised on August, 1st 2016

We expect all of our suppliers to read and fully understand beeline's Chemical Restrictions.

All of our suppliers are obliged to comply with beeline's Chemical Restriction and to take the responsibility for informing and controlling all their suppliers and sub-contractors about the content of these restrictions to make sure they also comply. The material scope mentioned for each chemical is not conclusive but the focus area.

The new Chemical Restrictions are valid for all OO from the 1st of August 2016.

All suppliers should do the testing according to the requirement in the official order. The tests should be carried out by accredited lab to guarantee the merchandise is compliant.

1. Lead and cadmium tests for all items with metal, plastic, glass, leather, ceramic etc. components.
2. AZO tests for all orders with textile, feather, leather, etc. components.
3. Chrome and APEO tests for all items with leather components.

If you are a fashion jewelry, silver/piercing or hair supplier, you will be asked to perform a randomly nickel release test on a defined number of styles. This amount will be evaluated by a risk-orientated evaluation of beeline quality management and can be adjusted due to quality issues.

We expect all of our suppliers to remain informed regarding the candidate list.

Shipping of items without tests or with failed lead/cadmium, AZO or chrome third party-test is strictly not allowed.

beeline QM Manager Annie Zhou and the QM Management ISC (beeline International Service Center) have to be informed in order to take decisions if a test is failed. All items arriving at our warehouse without required tests will be tested in a lab by us and all costs will be charged to the supplier's account.

All our suppliers have to acknowledge that beeline:

- Reserves the right to check any product, any part of production and/or retail packaging by any listed method, at any time or stage of production.
- Has the right to cancel the ordered product or to return the goods at the supplier's expenses if the product, production and/or retail packaging does not comply with these

restrictions. If the supplier decides that the goods should not be returned, all the disposal costs will be forwarded to the supplier's account.

- Has the right to cancel the ordered product or to return the goods at the supplier's expenses if goods are shipped without tests or with failed lead/cadmium, AZO or chrome third party-test. If the supplier decides that the goods should not be returned, all the disposal costs will be forwarded to the supplier's account.
- Holds the manufacturer/exporter responsible for any damages caused by the ordered product, production and/or retail packaging if they do not correspond to these restrictions.
- Has the right to receive the complete information and Material Safety Data Sheet (MSDS) concerning all products containing substances of the candidate list of more than 0.1% W/W.
- Reserves the right to charge USD 50.00 per item with missing test.

Vendor's name

Name of authorized person

Date

Signature of authorized person and vendor's stamp

6.7 Special Provisions for KIDS Assortments Suppliers – Commitment

There are special requirements for assuring the health and safety for our small customers.

A warning booklet has to be attached under the price sticker. An artwork is attached to this guide. A nickel test for each metal component (mentioned on the order sheet) shall be included into the buying price.

The KIDS assortments are tested by TUV in Qingdao. Please keep an extra eye during quality control on sharp edges, connections and glued components.

Please send an extra sample to our office in Qingdao because additional quality tests will be performed.

Vendor's name

Name of authorized person

Date

Signature of authorized person and vendor's stamp