

ZEEMAN

RESTRICTED SUBSTANCES LIST ZEEMAN

RSL VERSION 6.0

FEBRUARY 2022

ZEEMAN 2022

INTRODUCTION RSL 6.0 (version February 2022)

Dear Supplier,

We would like to remind you that as a supplier to Zeeman you have committed to ensuring that all products supplied fully comply with European and customer restrictions on the use of harmful substances. Zeeman's restrictions are generally based on existing European Legislation. However, in certain instances where there is evidence that a product may present a risk for the customer and current legislation is thought to be inadequate, stricter and/or additional limitations have been imposed.

These Zeeman standards are mandatory and we fully expect and require that all our suppliers comply with these requirements as part of our contractual relationship.

Whilst we recognize the additional challenges that may be faced by our supply chain with respect to these requirements, we stress that non-compliance can have serious consequences and maintaining these standards is essential for protecting the future of our business. It remains a primary aim of Zeeman to ensure that only safe, legally compliant and clean products are offered for sale in our stores and therefore failure to comply with these requirements will result in an immediate removal of product from stores.

It is imperative that you carry out due diligence checks on your suppliers, their products and the finished products you export to Zeeman, this can be done by means of test reports issued by accredited testing houses as well as proactively identify potential problems and develop commercially viable solutions to them. This not only provides you with guarantees that your suppliers are consistently meeting required standards but also significantly reduces the risk of any problems arising with your merchandise if and when your styles are selected for pre-shipment testing.

The Zeeman Restricted Substances List (RSL version 6.0 February 2022) and the Zeeman Manufacturing Restricted Substances List (MRSL version 2.0 February 2022) are two separate documents. The RSL and the MRSL should be communicated to all (raw material) suppliers. All chemicals used in any production process must meet the requirements of the Zeeman MRSL and all products delivered to Zeeman must meet the requirements of the RSL.

A valid OEKO-TEX® Standard 100 product certificate issued by the OEKO-TEX® Association (www.oeko-tex.com) covers most of the requirements of this RSL. The Sustainable Textile Production (STeP) certification system has a wider scope which includes an analysis of a production facility's management and performance with respect to certain environmental considerations. Certification based on the Oeko-Tex® Standard 100 or STeP can be more cost effective than carrying out single audits. **All suppliers delivering an Oekotex certified product to Zeeman must take into account that the requirements as mentioned in the Oekotex 100 standard always prevail over the requirements mentioned in this (M)RSL.**

Please be prepared that your contact person may request a signature for each order as a declaration that the specific order complies with our (M)RSL requirements. It is also possible that one or more of your styles could be selected for pre-shipment testing at a certified laboratory.

As a matter of general principle, Zeeman reserves the right to select styles to be (counter) tested upon arrival in our warehouse. If this test produces a "FAIL" result, all of the costs incurred in this testing process shall be borne by the supplier, including all additional costs associated with non-marketable styles.

As part of our ongoing sustainability improvement process, this (M)RSL will be updated on a regular basis to incorporate additions to the list and/or changes to legislation. Together with our vendors, we seek opportunities to achieve continuous improvement in this area. To this end, the (M)RSL can be used as a basis for the development of Quality Management Systems.

Should you have any questions or require further information, please contact Arnoud van Vliet CSR & Quality Manager.

<mailto:AvVliet@zeeman.com>

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Risk matrix RSL 6.0 (version February 2022)

- indicate that a chemical has been in widespread use and/or frequently detected in a particular material.
- indicate that a chemical has been deliberately used and/or detected in a particular material occasionally.
- indicates there is a very low but theoretical chance that a chemical could be used and/or detected.
- No dot indicates that we believe there is an almost negligible risk of a chemical being used and/or detected.

CHEMICAL	NATURAL FIBERS	SYNTHETIC FIBERS	BLENDED FIBERS	ARTIFICIAL LEATHER	NATURAL LEATHER	NATURAL MATERIALS	METAL	OTHER: PORCELAIN, CERAMIC, GLAS, CRYSTAL, ETC.	FEATHER & DOWN	POLYMERS								COATING AND PRINTS	GLUE
										EVA	PU Foams	All other PU & TPU	Rubber excludes latex and silicon rubbers	Polycarbonate	ABS	PVC	All Other foams, plastics & Polymer		
ACETOPHENONE AND 2-PHENYL-2-PROPANOL										●●									
ALKYLPHENOLS (AP)										●●	●●	●●	●●	●●	●●	●●			
ALKYLPHENOL ETHOXYLATES (APEO)	●●●	●●●	●●●	●●●	●●●	●●●			●●●								●●●	●●●	
AZO AMINES AND ARYLAMINE SALTS	●●●	●●●	●●●	●●●/A	●●●	●●●/A			●●●/A								●●●		
DIMETHYLFUMURATE					●●												●		
ORTHO-PHENYLPHENOL (OPP)					●●●														
CHLORINATED PARAFFINS				●●●	●●●					●●	●●	●●●	●●●	●●	●●	●●●	●●	●●	●●
CHLOROBENZENES AND CHLOROTOLUENES		●●	●●	●●	●														
CHLOROPHENOLS	●●●	●●	●●		●●●	●●●											●●●		
DISPERSE DYES CLASSIFIED TO BE ALLERGENIC		●●●	●●●	●●●													●●		
CARCINOGENIC DYES		●●●	●●●	●●●													●●		
DYES NAVY BLUE		●	●																
FLAME RETARDANTS										●●/B									
FORMALDEHYDE	●●●	●●●	●●●	●●	●●●	●●●/C											●●●	●●●	
HEAVY METALS EXTRACTABLE	●●●	●●●	●●●	●●	●●●		●●/F			●●	●●	●●	●●	●●	●●	●●	●●	●●	
CHROMIUM VI	●●/D	●●/E			●●●														
HEAVY METALS TOTAL	●/G		●/G	●●●	●●		●●●	●●●/H		●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●
A Level ●●● for dyed/colored materials	E Level ●● if extractable Chrome above 1 ppm								I Level ●●● for PVC materials								M Level ●●● for PU-based materials		
B Level ●● if Flame Retardants are applied	F Copper is exempt from restriction limits in Metal parts.								J Level ●● for Styrene/Butadiene Rubbers (SBRs) only										
C Level ●●● for Wood, Paper, and Straw materials	G Level ● for plant-based fibers; N/A for animal-based fibers.								K Level ●●● if a Fluorinated finish is applied										
D Level ●● for Wool materials	H Level ●●● for Cadmium and Lead only; Crystal is exempt for Lead								L Level ●●● Rubber or black Polymeric materials										

Risk matrix RSL 6.0 (version February 2022)

- indicate that a chemical has been in widespread use and/or frequently detected in a particular material.
- indicate that a chemical has been deliberately used and/or detected in a particular material occasionally.
- indicates there is a very low but theoretical chance that a chemical could be used and/or detected.
- No dot indicates that we believe there is an almost negligible risk of a chemical being used and/or detected.

CHEMICAL	NATURAL FIBERS	SYNTHETIC FIBERS	BLENDED FIBERS	ARTIFICIAL LEATHER	NATURAL LEATHER	NATURAL MATERIALS	METAL	OTHER: PORCELAIN, CERAMIC, GLAS, CRYSTAL, ETC.	FEATHER & DOWN	POLYMERS								COATING AND PRINTS	GLUE		
										EVA	PU Foams	All other PU & TPU	Rubber excludes latex and silicon rubbers	Polycarbonate	ABS	PVC	All Other foams, plastics & Polymer				
HEAVY METALS RELEASABLE NICKLE MONOMERS, STYRENE & VINYL CHLORIDE				●●●/I			●●●								●●/J		●●	●●●		●●●/I	
N-NITROSAMINES															●●						
ORGANOTIN COMPOUNDS		●●	●●	●●●	●●																
PERFLUORINATED CHEMICALS																					
PESTICIDES	●				●	●															
PHTHALATES				●●●																	
POLYCLIC AROMATIC HYDROCARBONS				●●●																	
QUINOLINE	●●	●●	●●																		
BISPHENOL- A				●●																	
PVC				●●●/I																	
UV STABILISERS				●●																	
SOLVENTS/RESIDUALS DMFa				●●●																	
SOLVENTS/RESIDUALS DMAC AND NMP				●●●																	
SOLVENTS/RESIDUALS FORMAMIDE																					
VOLATILE ORGANIC COMPOUNDS (VOCs)				●●																	
ODOUR TEST	●●● Finished Products Shoes (≤ Grade 2 or 3). If odour test is failed execute VOC screening.																				
pH	●●●	●●●	●●●	●●●	●●●																
A Level ●●● for dyed/colored materials	E Level ●● if extractable Chrome above 1 ppm								I Level ●●● for PVC materials								M Level ●●● for PU-based materials				
B Level ●● if Flame Retardants are applied	F Copper is exempt from restriction limits in Metal parts.								J Level ●● for Styrene/Butadiene Rubbers (SBRs) only												
C Level ●●● for Wood, Paper, and Straw materials	G Level ● for plant-based fibers; N/A for animal-based fibers.								K Level ●●● if a Fluorinated finish is applied												
D Level ●● for Wool materials	H Level ●●● for Cadmium and Lead only; Crystal is exempt for Lead								L Level ●●● Rubber or black Polymeric materials												

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
ALKYLPHENOLS (AP) AND ALKYLPHENOL ETHOXYLATES (APEO)				
Nonylphenols (NP)	Various	Textiles and Leather: EN ISO 21084:2019	Total APs: < 10 mg/kg	<p>APEOs can be used as or found in detergents, scouring agents, spinning oils, wetting agents, softeners, emulsifying/dispersing agents for dyes and prints, impregnating agents, de-gumming for silk production, dyes and pigment preparations, polyester padding and down/feather fillings.</p> <p>APs are used as intermediaries in the manufacture of APEOs and antioxidants used to protect or stabilize polymers.</p> <p>Biodegradation of APEOs into APs is the main source of APs in the environment.</p>
Octylphenols (OP)	Various	Polymers and all other materials: 1 g sample/20 mL THF, sonication for 60 minutes at 70 degrees C, analysis according to EN ISO 21084:2019		
Nonylphenoethoxylates (NPEO)	Various	All materials except Leather: EN ISO 18254-1:2016 with determination of APEO using LC/MS or LC/MS/MS	Total APs + APEOs: < 100 mg/kg	<p>APEOs and formulations containing APEOs are prohibited from use throughout supply chain and manufacturing processes.</p> <p>We acknowledge that residual or trace concentrations of APEOs may still be found at levels exceeding 100 ppm and that more time is necessary for the supply chain to phase them out completely.</p> <p>Recycled products: Contact the Zeeman CSR department for information about potential exemptions from the limit on NPEOs in recycled textile products.</p>
Octylphenoethoxylates (OPEO)	Various	Leather: Sample prep and analysis using EN ISO 18218-1:2015 with quantification according to EN ISO 18254-1:2016		

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
AZO AMINES AND ARYLAMINE SALTS				
4-Aminobiphenyl	92-67-1	<p>Textiles: EN ISO 14362-1:2017</p> <p>Leather: EN ISO 17234-1:2020</p> <p>Test Method for confirmation of 4-Aminoazobenzene (4AAB):</p> <p>Textiles: EN 14362-3: 2017</p> <p>Leather: EN ISO 17234-2: 2011</p>	< 20 mg/kg	<p>Azo dyes and pigments are colorants that incorporate one or several azo groups (-N=N-) bound with aromatic compounds.</p> <p>Thousands of azo dyes exist, but only those which degrade to form the listed cleavable amines are restricted.</p> <p>Azo dyes that release these amines are regulated and should no longer be used for dyeing textiles.</p>
Benzidine	92-87-5			
4-Chloro-o-toluidine	95-69-2			
2-Naphthylamine	91-59-8			
o-Aminoazotoluene	97-56-3			
2-Amino-4-nitrotoluene	99-55-8			
p-Chloraniline	106-47-8			
2,4-Diaminoanisole	615-05-4			
4,4'-Diaminodiphenylmethane (4,4'-MDA)	101-77-9			
3,3'-Dichlorobenzidine	91-94-1			
3,3'-Dimethoxybenzidine	119-90-4			
3,3'-Dimethylbenzidine	119-93-7			
3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0			
p-Cresidine	120-71-8			
4,4'-Methylene-bis(2-chloraniline)	101-14-4			
4,4'-Oxydianiline	101-80-4			
4,4'-Thiodianiline	139-65-1			
o-Toluidine	95-53-4			
2,4-Toluediamine (2,4-TDA)	95-80-7			
2,4,5-Trimethylaniline	137-17-7			
o-Anisidine (2-Methoxyaniline)	90-04-0			
4-Aminoazobenzene (4-AAB)	60-09-3			
2,4-Xylidine	95-68-1			
2,6-Xylidine	87-62-7			
4-Chloro-o-toluidinium chloride	3165-93-3			
2-Naphthylammoniumacetate	553-00-4			
4-Methoxy-m-phenylene diammonium sulphate	39156-41-7			
2,4,5-Trimethylaniline hydrochloride	21436-97-5			
p-Phenylenediamine	106-50-3	< 250 mg/kg		

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
BIOCIDES				
Dimethylfumarate	624-49-7	All materials: ISO 16186:2021	< 0.1 mg/kg	<p>Dimethyl fumarate (DMFu) is a fungicide used to prevent mould in leather and textiles.</p> <p>Can be used in sachets in packaging to prevent the buildup of mold, especially during shipping.</p> <p>DMFu can cause acute dermatitis, eczema, and general fatigue to the persons who have been in contact with this substance.</p> <p>Can also be used as Pesticide.</p>
CHLOROBENZENES AND CHLOROTOLUENES				
2-Chlorotoluene	95-49-8	All materials: EN 17137:2018	< 1 mg/kg (total)	<p>These carriers are used in dyeing polyester and blends of wool and polyester as wool cannot be dyed at the high temperatures (130°C) required for dyeing polyester.</p> <p>Most of these carriers are toxic to humans and aquatic organisms, and some are even carcinogenic.</p> <p>Can also be used as solvent</p>
3-Chlorotoluene	108-41-8			
4-Chlorotoluene	106-43-4			
2,3-Dichlorotoluene	32768-54-0			
2,4-Dichlorotoluene	95-73-8			
2,5-Dichlorotoluene	19398-61-9			
2,6-Dichlorotoluene	118-69-4			
3,4-Dichlorotoluene	95-75-0			
2,3,6-Trichlorotoluene	2077-46-5			
2,4,5-Trichlorotoluene	6639-30-1			
2,3,4,5-Tetrachlorotoluene	76057-12-0			
2,3,4,6-Tetrachlorotoluene	875-40-1			
2,3,5,6-Tetrachlorotoluene	1006-31-1			
Pentachlorotoluene	877-11-2			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
CHLOROBENZENES AND CHLOROTOLUENES CONTINUED				
1,3-Dichlorobenzene	541-73-1	All materials: EN 17137:2018	< 1 mg/kg (total)	<p>Chlorobenzenes and Chlorotoluenes (Chlorinated Aromatic Hydrocarbons) can be used as carriers in the dyeing process of polyester or wool/ polyester fibers as wool cannot be dyed at the high temperatures (130°C) required for dyeing polyester.</p> <p>They can also be used as solvents.</p> <p>Cross-contamination from anti-moth agents and poly shipping bags may cause failures.</p> <p>Most of these carriers are toxic to humans and aquatic organisms, and some are even carcinogenic.</p>
1,4-Dichlorobenzene	106-46-7			
1,2,3-Trichlorobenzene	87-61-6			
1,2,4-Trichlorobenzene	120-82-1			
1,3,5-Trichlorobenzene	108-70-3			
1,2,3,4-Tetrachlorobenzene	634-66-2			
1,2,3,5-Tetrachlorobenzene	634-90-2			
1,2,4,5-Tetrachlorobenzene	95-94-3			
Pentachlorobenzene	608-93-5			
Hexachlorobenzene	118-74-1			
p-Chlorobenzotrichloride	5216-25-1			
Benzotrichloride	98-07-7			
Benzyl Chloride	100-44-7			
1,2-Dichlorobenzene	95-50-1	< 10 mg/kg		
CHLORINATED PARAFFINS				
Short-chain Chlorinated Paraffins (SCCPs) (C10-C13)	85535-84-8	Leather: ISO 18219-1:2021 (SCCP) ISO 18219-2:2021 (MCCP)	< 1000 mg/kg	<p>May be used as softeners, flame retardants, or fat-liquoring agents in leather production; also as a plasticizer in polymer production.</p> <p>SCCP's and MCCP's may cause long-term adverse effects in the aquatic environment.</p>
Medium-chain Chlorinated Paraffins (MCCPs) (C14-C17)	85535-85-9	Textiles: ISO 22818:2021 (SCCP + MCCP)	< 1000 mg/kg	

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
CHLOROPHENOLS				
Pentachlorophenol (PCP)	87-86-5	All materials: DIN 50009:2021	< 0.5 mg/kg each	<p>Chlorophenols are polychlorinated compounds used as preservatives or pesticides.</p> <p>Pentachlorophenol (PCP), Tetrachlorophenol (TeCP), and Trichlorophenols (TriCP) are sometimes used to prevent mold and kill insects when growing cotton and when storing/transporting fabrics.</p> <p>PCP, TeCP, and TriCP can also be used as in-can preservatives in print pastes and other chemical mixtures.</p>
2,3,5,6- Tetrachlorophenol (TeCP)	935-95-5			
2,3,4,6- Tetrachlorophenol (TeCP)	58-90-2			
2,3,4,5- Tetrachlorophenol (TeCP)	4901-51-3			
2,3,4-Trichlorophenol (TriCP)	15950-66-0			
2,3,5-Trichlorophenol (TriCP)	933-78-8			
2,3,6-Trichlorophenol (TriCP)	933-75-5			
2,4,5-Trichlorophenol (TriCP)	95-95-4			
2,4,6-Trichlorophenol (TriCP)	88-06-2			
3,4,5-Trichlorophenol (TriCP)	609-19-8			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
DYES WHICH ARE CLASSIFIED TO BE ALLERGENIC				
C.I. Disperse Blue 1	2475-45-8	All materials: DIN 54231: 2005	<p style="text-align: center;">< 30 mg/kg each</p> <p style="text-align: center;">Sum of all < 75 mg/kg</p>	<p>Disperse dyes are a class of water-insoluble dyes that penetrate the fiber system of synthetic or manufactured fibers and are held in place by physical forces without forming chemical bonds.</p> <p>Disperse dyes are used in synthetic fiber (e.g., polyester, acetate, polyamide).</p> <p>Restricted disperse dyes are suspected of causing allergic reactions and are prohibited from use for dyeing of textiles.</p>
C.I. Disperse Blue 3	2475-46-9			
C.I. Disperse Blue 7	3179-90-6			
C.I. Disperse Blue 26	3860-63-7			
C.I. Disperse Blue 35A	56524-77-7			
C.I. Disperse Blue 35B	56524-76-6			
C.I. Disperse Blue 102	12222-97-8			
C.I. Disperse Blue 106	12223-01-7			
C.I. Disperse Blue 124	61951-51-7			
C.I. Disperse Brown 1	23355-64-8			
C.I. Disperse Orange 1	2581-69-3			
C.I. Disperse Orange 3	730-40-5			
C.I. Disperse Orange 11	82-28-0			
C.I. Disperse Orange 37/59/76	12223-33-5 13301-61-6 51811-42-8			
C.I. Disperse Orange 149	85136-74-9			
C.I. Disperse Red 1	2872-52-8			
C.I. Disperse Red 11	2872-48-2			
C.I. Disperse Red 17	3179-89-3			
C.I. Disperse Red 151	61968-47-6			
C.I. Disperse Yellow 1	119-15-3			
C.I. Disperse Yellow 3	2832-40-8			
C.I. Disperse Yellow 7	6300-37-4			
C.I. Disperse Yellow 9	6373-73-5			
C.I. Disperse Yellow 23	6250-23-3			
C.I. Disperse Yellow 39	12236-29-2			
C.I. Disperse Yellow 49	54824-37-2			
C.I. Disperse Yellow 56	54077-16-6			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
DYES WHICH ARE CLASSIFIED TO BE CARCINOGENIC				
C.I. Acid Red 26	3761-53-3	All materials: DIN 54231: 2005	< 30 mg/kg each Sum of all < 75 mg/kg	Acid dyes are water-soluble anionic dyes mainly used on fibers such as wool, silk, and nylon.
C.I. Acid Red 114	6459-94-5			
C.I. Basic Blue 26 (with ≥ 0.1 % Michler's ketone or base)	2580-56-5			Basic dyes are water- soluble cationic dyes mainly used on acrylic fibers.
C.I. Basic Red 9	569-61-9			
C.I. Basic Green 4 (oxalate, chloride or free)	2437-29-8 569-64-2 10309-95-2			
C.I. Basic Violet 3 (with ≥ 0.1 % Michler's ketone or base)	548-62-9			
C.I. Basic Violet 14	632-99-5			
C.I. Direct Black 38	1937-37-7			
C.I. Direct Blue 6	2602-46-2			
C.I. Direct Blue 15	2429-74-5			
C.I. Direct Brown 95	16071-86-6			
C.I. Direct Red 28	573-58-0			Solvent dyes are dyes which are soluble in organic solvents, and can be used on natural and synthetic fibers.
C.I. Solvent Yellow 1 (4-Aminoazobenzene)	60-09-3			
4-Dimethylaminoazobenzene (Solvent Yellow 2)	60-11-7			
C.I. Solvent Blue 4	6786-83-0			Pigment dyes are widely used in a variety of fiber and material types.
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	561-41-1			
C.I. Pigment Red 104 (Lead chromate molybdate sulphate red)	12656-85-8			
C.I. Pigment Yellow 34 (Lead sulfochromate yellow)	1344-37-2			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
DYES WHICH ARE ADDITIONALLY RESTRICTED				
Navy Blue Component 1: C ₃₉ H ₂₃ ClCrN ₇ O ₁₂ S ₂ Na Component 2: C ₄₆ H ₃₀ CrN ₁₀ O ₂₀ S ₂ .3Na	118685-33-9	All materials: DIN 54231: 2005	< 30 mg/kg	Navy Blue Dye is a specific dye mixture used to dye leather and textiles.
FLAME RETARDANTS				
Pentabromodiphenyl ether (PentaBDE)	32534-81-9 60348-60-9	All materials: ISO 17881-1: 2016 for brominated flame retardants	< 10 mg/kg each	<p>· With very limited exceptions, flameretardant substances, including the entire class of organohalogen flame retardants, should no longer be applied to materials during production.</p> <p>Listed here are examples of flame-retardant substances used historically across the apparel and footwear industry.</p> <p>It is not intended to be a complete list.</p> <p>Other flame retardants not applicable to this industry are regulated worldwide by the Stockholm Convention and the Aarhus Protocol, which have been implemented in the European Union under the POPs Regulation.</p>
Decabromodiphenyl ethane (DBDPE)	84852-53-9			
Octabromodiphenylether (OctaBDE)	32536-52-0			
Decabromodiphenyl Ether (DecaBDE)	1163-19-5			
All other Polybrominated diphenyl ethers (PBDE's)	Various			
Tetrabromobisphenol A (TBBP A)	79-94-7			
Polybrominated biphenyls (PBBs)	59536-65-1			
Hexabromocyclododecane (HBCDD)	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8			
2,2-bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0			
Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)	13674-87-8			
Trixylylphosphate (TXP)	25155-23-1			
Tris-(2,3-dibromopropyl)- phosphate (TRIS)	126-72-7			
Tris - (aziridinyl) - phosphineoxide (TEPA)	545-55-1			
Tris-(2-chloroethyl)-phosphate (TCEP)	115-96-8			
Bis-(2,3-dibromopropyl)phosphate (BDBPP)	5412-25-9			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
FORMALDEHYDE				
Formaldehyde	50-00-0	<p>All materials except Leather: JIS L 1041-2011 A (Japan Law 112) or EN ISO 14184-1:2011</p> <p>Leather: EN ISO 17226-2:2019 with EN ISO 17226-1:2019 confirmation method in case of interferences.</p> <p>Alternatively, EN ISO 17226-1:2021 can be used on its own.</p>	<p>< 3 years : < 16 mg/kg</p> <p>> 3 years: direct skin contact < 75 mg/kg</p> <p>> 3 years: indirect skin contact (jackets and coats): < 150 mg/kg*</p>	<p>Formaldehyde can be used as one of the starting materials in auxiliaries imparting textile performance such as wrinkle free, dimensional stability, and stain resistant characteristics to cotton and cotton blend fabrics.</p> <p>Formaldehyde can be found in resins, binders and fixing agents for dyes and pigments (especially those with fluorescent effects). It can also be used as a catalyst in certain printing, adhesive and heat transfer processes.</p> <p>Classified in the EU as "carcinogenic from category 1B and mutagen category 2".</p> <p>* In REACH Annex XVII there is a temporary exemption for indirect skin contact products (jackets and coats).</p> <p>From November 2023 onwards the exemption will not be valid anymore and the limit will be 75 mg/kg for all products.</p>
HEAVY METALS EXTRACTABLE				
Antimony (Sb)	7440-36-0	<p>All materials except Leather: DIN EN 16711-2:2016</p>	< 30 mg/kg	<p>Found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.</p>
Arsenic (As)	7440-38-2	<p>Leather: DIN EN ISO 17072-1:2019</p>	<p>< 3 years < 0.2 mg/kg</p> <p>> 3 years < 1.0 mg/kg</p>	<p>Arsenic and its compounds can be used in preservatives, pesticides, and defoliants for cotton, synthetic fibers, paints, inks, trims, and plastics.</p>

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
HEAVY METALS EXTRACTABLE CONTINUED				
Barium (Ba)	7440-39-3	All materials except Leather: DIN EN 16711-2:2016 Leather: DIN EN ISO 17072-1:2019 *Copper is exempt from restriction limits in Metal parts. **Crystal or "lead glass" is exempt from total Lead restrictions	< 1000 mg/kg	Barium and its compounds can be used in pigments for inks, plastics, and surface coatings, as well as in dyeing, mordants, filler in plastics, textile finishes, and leather tanning.
Cadmium (Cd)	7440-43-9		< 0.1 mg/kg	Cadmium compounds are used as pigments (especially in red, orange, yellow and green); as a stabilizer for PVC; and in fertilizers, biocides, and paints.
Chromium (Cr)	7440-47-3		< 3 years < 1.0 mg/kg > 3 years < 2.0 mg/kg	Chromium compounds can be used as dyeing additives; dye-fixing agents; color-fastness after- treatments; dyes for wool, silk, and polyamide (especially dark shades); and leather tanning.
Cobalt (Co)	7440-48-4		< 3 years < 1.0 mg/kg > 3 years < 4.0 mg/kg	Cobalt and its compounds can be used in alloys, pigments, dyestuff, and the production of plastic buttons.
Copper (Cu)*	7440-50-8		< 3 years < 25.0 mg/kg > 3 years < 50.0 mg/kg	Copper and its compounds can be found in alloys and pigments, and in textiles as an antimicrobial agent.
Lead (Pb)**	7439-92-1		< 3 years < 0.2 mg/kg > 3 years < 1.0 mg/kg	May be associated with alloys, plastics, paints, inks, pigments and surface coatings.
Mercury (Hg)	7439-97-6		< 0.02 mg/kg	Mercury compounds can be present in pesticides and as contaminants in caustic soda (NaOH). They may also be used in paints and as catalysts in the manufacture of PU and vinyl chloride for use in PVC.
Nickel (Ni)	7440-02--0		< 3 years < 1.0 mg/kg > 3 years < 4.0 mg/kg	Nickel and its compounds can be used for plating alloys and improving corrosion-resistance and hardness of alloys. They can also occur as impurities in pigments and alloys.
Selenium (Se)	7782-49-2		< 500 mg/kg	May be found in synthetic fibres, paints, inks, plastics and metal trims.

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
HEAVY METALS EXTRACTABLE CONTINUED				
APPLICABLE FOR TEXTILES				
Chromium VI (Cr VI)	18540-29-9	Textiles: DIN EN 16711-2:2016 with EN ISO 17075-1:2017 if Cr is detected	< 1 mg/kg	Though typically associated with leather tanning, Chromium VI also may be used in the “after-chroming” process for wool dyeing (Chrome salts applied to acid-dyed wool to improve fastness).
APPLICABLE FOR LEATHER				
Chromium VI (Cr VI)	18540-29-9	Leather: EN ISO 17075-1:2017 and EN ISO 17075-2:2017 for confirmation in case the extract causes interference. Alternatively, EN ISO 17075-2:2017 may be used on its own. Ageing test: ISO 10195:2018 Method A2	Not detected Detection limit 3 mg/kg	Many heavy metals are bio accumulative when absorbed by the human body through perspiration and give cause for concern in health terms such as chronic toxicity, allergenic reactions and cancer
HEAVY METALS TOTAL CONTENT				
Arsenic (As)	7440-38-2	All materials except Leather: DIN EN 16711-1:2016 Leather: DIN EN ISO 17072-2:2019	< 100 mg/kg	Many heavy metals are bio accumulative when absorbed by the human body through perspiration and give cause for concern in health terms such as chronic toxicity, allergenic reactions and cancer
Cadmium and its compounds	7440-43-9		< 40 mg/kg	
Mercury (Hg)	7439-97-6		< 0.5 mg/kg	
Lead and its compounds	7439-92-1		< 90 mg/kg	
		Non-metal: CPSC-CH-E1002-08.3 Metal: CPSC-CH-E1001-08.3 Lead in paint and surface coatings: CPSIA Section 101 16 CFR 1303		

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
HEAVY METALS RELEASABLE NICKEL				
Nickel	7440-02-0	Nickel release: EN 1811: 2011+A1:2015	Consumer goods such as jewellery intended to be used for body piercings must not release more than 0.2 µg nickel per cm ² per week.	Nickel can cause extreme allergies.
		Abrasion of coated items: EN 12472:2005:2020	Consumer goods such as jewellery, snap fasteners, press buttons, zip fasteners, etc., which can come into contact with the human skin for a longer period must not release more than 0.5 µg nickel per cm ² per week.	
		EN 16128: 2015	In spectacle frames and sunglasses intended to come into close and prolonged contact with the skin must not release more than ≤ 0.5 µg nickel per cm ² per week	
MONOMERS				
Vinyl Chloride	75-01-4	EN ISO 6401:2008	< 1 mg/kg	Vinyl Chloride is a precursor for polymerization and may be present in various PVC materials like prints, coatings, flip flops, and synthetic leather.
Styrene, Free	100-42-5	Extraction in Methanol GC/MS, sonication at 60 degrees C for 60 minutes	< 500 mg/kg	Styrene is a precursor for polymerization and may be present in various Styrene copolymers like plastic buttons. Free styrene is restricted, not total styrene.
N-NITROSAMINES				
N-nitrosodimethylamine (NDMA)	62-75-9	GB/T 24153-2009: determination using GC/MS, with LC/MS/MS verification if positive. Alternatively, LC/MS/MS may be performed on its own. EN ISO 19577:2019	< 0.5 mg/kg each	Can be formed as by-product in the production of rubber.
N-nitrosodiethylamine (NDEA)	55-18-5			
N-nitrosodipropylamine (NDPA)	621-64-7			
N-nitrosodibutylamine (NDBA)	924-16-3			
N-nitrosopiperidine (NPIP)	100-75-4			
N-nitrosopyrrolidine (NPYR)	930-55-2			
N-nitrosomorpholine (NMOR)	59-89-2			
N-nitroso N-methyl N-phenylamine (NMPHA)	614-00-6			
N-nitroso N-ethyl N-phenylamine (NEPHA)	612-64-6			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
ORGANOTIN COMPOUNDS				
Tributyltin (TBT)	Various	All materials: CEN ISO/TS 16179:2012 or EN ISO 22744-1:2020	< 0.5 mg/kg	Class of chemicals combining tin and organics such as butyl and phenyl groups. Organotins are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (e.g., antibacterials), catalysts in plastic and glue production, and heat stabilizers in plastics/rubber. In textiles and apparel, organotins are associated with plastics/rubber, inks, paints, metallic glitter, polyurethane products and heat transfer material.
Triphenyltin (TPhT)	Various			
Dibutyltin (DBT)	Various			
Diocetyl tin (DOT)	Various			
Monobutyltin (MBT)	Various			
Tricyclohexyltin (TCyHT)	Various			
Triocetyl tin (TOT)	Various			
Tripropyltin (TPT)	Various			
Trimethyltin (TMT)	Various			
OTHER ATTENTION POINTS				
pH value for textiles	N.A.	Textiles and Artificial Leather: EN ISO 3071:2020 Leather: EN ISO 4045:2018	Textiles: 4.0 – 7.5 Leather: 3.2 - 4.5	pH value is a characteristic number, ranging from pH 0 to pH 14, which indirectly shows the content of acidic or alkaline substances in a product. pH values less than 7 indicate sources of acidic substances, and values greater than 7 indicate sources of alkaline substances. To avoid irritation or chemical burns to the skin, the pH value of products must be in the range of human skin—approximately pH 5.5
Odour		SNV 195651:1968	No abnormal odour allowed. If odour rating > 3 VOC test to be performed	

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
OTHER RESTRICTED CHEMICALS				
Quinoline	91-22-5	All materials: DIN 54231:2005 with methanol extraction at 70 degrees C	< 50 mg/kg	<p>Found as an impurity in polyester and some dyestuffs.</p> <p>Quinoline can be included with disperse dye testing, as the same method is used for both</p>
Bisphenol A (4,4'- Isopropylidenediphenol) (BPA)	80-05-7	All materials: Extraction: 1 g sample/20 ml THF, sonication for 60 minutes at 60 degrees C, analysis with LC/MS	< 1 mg/kg	<p>Bisphenol A (BPA) is used in the production of epoxy resins and plastics.</p> <p>Bisphenol A can be contained in plastic materials and plastisol print, for example.</p>
Ortho-phenylphenol (OPP)	90-43-7	All materials: DIN 50009:2021	< 1000 mg/kg	OPP is used for its preservative properties in leather or as a carrier in polyester dyeing processes.
Acetophenone	98-86-2	Extraction in acetone or methanol GC/MS, sonication for 30 minutes at 60 degrees C	< 50 mg/kg each	Potential breakdown products in EVA foam when using Dicumyl Peroxide as a cross-linking agent.
2-Phenyl-2-Propanol	617-94-7			
PERFLUORINATED CHEMICALS AND HER COMPOUNDS (SEE APPENDIX A PAGE 25 FOR INDIVIDUAL SUBSTANCES)				
Perfluorooctane Sulfonates (PFOS) and related substances ¹	Various	All materials: EN ISO 23702-1:2018	< 1 µg/m ²	<p>PFOA and PFOS may be present as unintended byproducts in long-chain and short-chain commercial water-, oil-, and stain-repellent agents. PFOA may also be used in polymers like Polytetrafluoroethylene (PTFE).</p> <p>In addition to this list, all PFOA- and PFOS-related substances are prohibited from use and are regulated worldwide by the Stockholm Convention and the Aarhus Protocol, which have been implemented in the European Union under the POPs Regulation</p>
Perfluorooctane Acid (PFOA) and it salts ¹	Various		< 25 ppb total	
PFOA-related substances ¹	Various		< 1000 ppb total	

¹The Netherlands together with Germany, Denmark, Norway and Sweden agreed early 2020 to prepare a joint REACH restriction proposal to limit the risk to the environment and human health from the manufacture and use of a wide range of PFAS chemicals. The restriction is expected to enter into force in 2025. The widely used PFHxA (C6) chemistry that has replaced the C8 chemistry will be restricted in REACH legislation from 2023 onwards. Suppliers providing products to Zeeman with water or stain repellent functions must inform Zeeman on the chemistry used to realize this claim.

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
PESTICIDES (SEE APPENDIX B PAGE 26 FOR INDIVIDUAL SUBSTANCES)				
See Appendix B for a complete overview of the substances	Various	All materials: ISO 15913/DIN 38407 F2 or EPA 8081/EPA 8151A or BVL L 00.00-34:2010-09	Not detected Detection limit 0.5 mg/kg	<p>A pesticide may be a chemical substance, biological agent (such as a virus or bacteria), antimicrobial, disinfectant or device used against any pest</p> <p>Pesticides also have drawbacks: potential toxicity to humans and animals</p> <p>In textiles and apparel, these pesticides may be found in natural fibres, primarily cotton.</p>

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
PHTHALATES				
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	<p>Sample preparation for all materials: CPSC-CH-C1001-09.4</p> <p>Measurement:</p> <p>Textiles: GC/MS, EN ISO 14389:2014 (7.1 Calculation based on weight of print only; 7.2 Calculation based on weight of print and textile if print cannot be removed).</p> <p>All materials except textiles: GC/MS</p>	<p>< 500 mg/kg each</p> <p>The sum of all Phthalates < 1000 mg/kg</p>	<p>Esters of ortho-phthalic acid (Phthalates) are a class of organic compound commonly added to plastics to increase flexibility. They are sometimes used to facilitate the moulding of plastic by decreasing its melting temperature.</p> <p>Phthalates can be found in:</p> <ul style="list-style-type: none"> • Flexible plastic components (e.g., PVC) <ul style="list-style-type: none"> • Print pastes • Adhesives • Plastic buttons • Plastic sleeveings • Polymeric coatings <p>The listed Phthalates are those most commonly used and regulated across industry sectors. Find more information about additional Phthalates on the REACH substances of very high concern (SVHC) candidate list, which is updated frequently.</p> <p>Phthalates are reprotoxic and can cause birth defects and changes in hormone levels.</p>
Dibutyl phthalate (DBP)	84-74-2			
Butylbenzyl phthalate (BBP)	85-68-7			
Di-“isononyl” phthalate (DINP)	28553-12-0 68515-48-0			
Di-“isodecyl phthalate (DIDP)	26761-40-0 68515-49-1			
Di-n-octyl phthalate (DNOP)	117-84-0			
Di-isobutyl phthalate (DIBP)	84-69-5			
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0			
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6			
Di-isopentylphthalate (DIPP)	605-50-5			
Di-n-pentyl phthalate (DPENP)	131-18-0			
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8			
Di-n-hexyl phthalate (DnHP)	84-75-3			
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4			
N-pentyl-isopentyl phthalate (NPIPP)	776297- 69-9			
1,2- Benzenedicarboxylic acid. Dihexyl ester. Branched and linear (DHxP)	68515-50-4			
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5)	68515-51-5 68648-93-1			
Di-iso-hexylphthalate (DIHxP)	71850-09-4			
Di-cyclohexylphthalate (DCHP)	84-61-7			
Diethyl phthalate (DEP)	84-66-2			
Di-n-propylphthalate (DPrP)	131-16-8			
Dimethyl phthalate (DMP)	131-11-3			
Di-iso-octyl phthalate (DIOP)	27554-26-3			
Di-n-nonyl phthalate (DNP)	84-76-4			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
POLYCYCLIC AROMATIC HYDROCARBONS (PAH'S)				
Benzo(a)pyrene [BaP]	50-32-8	All materials: AFPS GS 2019	PAH for toys and childcare articles: < 0.5 mg/kg each Others: < 1mg/kg each	<p>PAHs are natural components of crude oil and are common residues from oil refining. PAHs have a characteristic smell similar to that of car tires or asphalt.</p> <p>Oil residues containing PAHs are added to rubber and plastics as a softener or extender and may be found in rubber, plastics, lacquers and coatings.</p> <p>PAHs are often found in the outsoles of footwear and in printing pastes for screen prints. PAHs can be present as impurities in Carbon Black.</p>
Benzo(a)anthracene	56-55-3			
Chrysene	218-01-9			
Benzo(b)fluoranthene	205-99-2			
Benzo(k)fluoranthene	207-08-9			
Dibenzo(ah)anthracene	53-70-3			
Benzo(e)pyrene	192-97-2			
Benzo(j)fluoranthene	205-82-3			
Acenaphthene	83-32-9			
Acenaphthylene	208-96-8		No individual restriction. The sum of 18 PAH's < 10 mg/kg	<p>They also may be formed from thermal decomposition of recycled materials during reprocessing.</p> <p>Rubber or plastic components that come into direct and prolonged contact with the human skin or the oral cavity can cause severe allergenic reactions.</p> <p>*Naphthalene: Dispersing agents for textile dyes may contain high residual naphthalene concentrations due to the use of low-quality Naphthalene derivatives (e.g., poorquality Naphthalene Sulphonate Formaldehyde condensation products).</p>
Antracene	120-12-7			
Benzo(ghi)perylene	191-24-2			
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			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
PVC AND LATEX				
Polyvinylchloride (PVC)	9002-86-2	Beilstein test/Infrared Spectroscopy (FTIR)	Usage ban	The use of PVC is voluntarily restricted because it is claimed that dioxins are produced as a byproduct of vinyl chloride manufacture and from burning of waste PVC.
Natural Rubber Latex	9006-04-06	DIN EN 455-3 (modified) Lowry method"		Latex is an aqueous dispersion of polymers that can be solidified into rubber.
RESTRICTION ON PACKAGING				
Cadmium (Cd)	Various	CEN/TR 13695-1 Acid digestion with ICP analysis	Usage Ban, Trace results: < 100 mg/kg	Packaging means transportation packaging as well as product packaging, i.e., any material used for the containment, protection, handling, delivery, and presentation of finished goods (article).
Lead (Pb)				
Chromium (Cr6+)— hexavalent				
Mercury (Hg)				
UV ABSORBERS				
UV 320	3846-71-7	Organic solvent extraction, GC-MS	< 1000 mg/kg	PU foam materials such as open cell foams for padding. Used as UV-absorbers for plastics (PVC, PET, PC, PA, ABS, and other polymers), rubber, polyurethane.
UV 327	3864-99-1			
UV 328	25973-55-1			
UV 350	36437-37-3			

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SUBSTANCE	CAS NUMBER	TEST METHOD	ZEEMAN RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
SOLVENTS				
Dimethylformamide (DMFa)	68-12-2	Textiles: EN 17131:2019 All other materials: DIN CEN ISO/TS 16189:2013	< 500 mg/kg	Solvent used in plastics, rubber, and polyurethane (PU) coating. Water-based PU does not contain DMFa and is therefore preferable.
Formamide	75-12-7		< 1000 mg/kg	Byproduct in the production of EVA foams.
Dimethylacetamide (DMAC)	127-19-5			Solvent used in the production of elastane fibers and sometimes as substitute for DMFa.
N-Methyl-2-pyrrolidone (NMP)	872-50-4			Industrial solvent used in production of water-based Polyurethanes and other polymeric materials. May also be used as a surface treatment for textiles, resins, and metal-coated plastics, or as a paint stripper. UV Absorbers / Stabilizers.
VOLATILE ORGANIC COMPOUNDS				
Benzene	71-43-2	For general VOC screening: GC/MS headspace 45 minutes at 120 degrees C	< 5 mg/kg	These VOCs should not be used in textile auxiliary chemical preparations. They are associated with solvent-based processes such as solvent-based polyurethane coatings and glues/adhesives. They should not be used for any kind of facility cleaning or spot cleaning.
Carbon Disulfide	75-15-0			
Carbon Tetrachloride	56-23-5			
Chloroform	67-66-3			
Cyclohexanone	108-94-1			
1,2-Dichloroethane	107-06-2			
1,1-Dichloroethylene	75-35-4			
Ethylbenzene	100-41-4			
Pentachloroethane	76-01-7			
1,1,1,2- Tetrachloroethane	630-20-6			
1,1,2,2- Tetrachloroethane	79-34-5			
Tetrachloroethylene (PERC)	127-18-4			
Toluene	108-88-3			
1,1,1- Trichloroethane	71-55-6			
1,1,2- Trichloroethane	79-00-5			
Trichloroethylene	79-01-6			
Xylene	1330-20-7			
Orthoxylene	95-47-6			
Metaxylene	108-38-3			
Paraxylene	106-42-3			

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

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SUBSTANCE	CAS NUMBER	SUBSTANCE	CAS NUMBER	SUBSTANCE	CAS NUMBER
APPENDIX B. PESTICIDES AND HERBICIDES, AGRICULTURAL					
2-(2,4,5-trichlorophenoxy) propionic acid, its salts and compounds; 2,4,5-TP	93-72-1	Dichlofluanide	1085-98-9	Kelevane	4234-79-1
2,4,5-T	93-76-5	Dichlorprop	120-36-5	Kepone	143-50-0
2,4-D	94-75-7	Dicofol	115-32-2	Lindane	58-89-9
Aldrine	309-00-2	Dicrotophos	141-66-2	Malathione	121-75-5
Azinophosmethyl	86-50-0	Dieldrine	60-57-1	MCPA	94-74-6
Azinophosethyl	2642-71-9	Dimethoate	60-51-5	MCPB	94-81-5
Bromophos-ethyl	4824-78-6	Dinoseb, Salts and Acetate	88-85-7	Mecoprop	93-65-2
Captafol	2425-06-1	DTTB (4, 6-Dichloro-7 (2,4,5-trichloro-phenoxy) -2-Trifluoro methyl benz imidazole)	63405-99-2	Metamidophos	10265-92-6
Carbaryl	63-25-2	Endosulfan	115-29-7	Methoxychlor	72-43-5
Chlorbenzilat	510-15-6	Endosulfan, α -	959-98-8	Mirex	2385-85-5
Chlordane	57-74-9	Endosulfan, β -	33213-65-9	Monocrotophos	6923-22-4
Chlordimeform	6164-98-3	Endrine	72-20-8	Parathion-methyl	298-00-0
Chlorfenvinphos	470-90-6	Esfenvalerate	66230-04-4	Pentachloroanisole	1825-21-4
Chlorthalonil	1897-45-6	Ethylendibromid	106-93-4	Phosdrin/Mevinphos	7786-34-7
Coumaphos	56-72-4	Ethylparathione; Parathion	56-38-2	Perthane	72-56-0
Cyfluthrin	68359-37-5	Fenvalerate	51630-58-1	Propethamphos	31218-83-4
Cyhalothrin	91465-08-6	Halogenated naphthalenes, including polychlorinated naphthalenes (PCNs)	Various	Profenophos	41198-08-7
Cypermethrin	52315-07-8	Heptachlor	76-44-8	Quinalphos	13593-03-8
S,S,S-Tributyl phosphorotrithioate (Tribufos)	78-48-8	Heptachlorepoide	1024-57-3	Quintozene	82-68-8
Deltamethrin	52918-63-5	a-Hexachlorcyclohexane with & without Lindane	319-84-6	Strobane	8001-50-1
DDD	53-19-0 72-54-8	b-Hexachlorcyclohexane with & without Lindane	319-85-7	Telodrin	297-78-9
DDE	3424-82-6 72-55-9	g-Hexachlorcyclohexane with & without Lindane	319-86-8	Toxaphene	8001-35-2
DDT	50-29-3 789-02-6	Hexachlorobenzene	118-74-1	Tolyfluanide	731-27-1
Diazinone	333-41-5	Isodrine	465-73-6	Trifluralin	1582-09-8

EN 71-3 requirements RSL 6.0 (version February 2022)

EN 71-3 TOY REQUIREMENTS (MIGRATION LIMITS FROM TOY MATERIALS)

SUBSTANCE	CAS NUMBER	REGULATION	TEST METHOD	CATEGORY 1 Solid materials which may leave residues on the hands	CATEGORY 2 Fluid or viscous materials which can be ingested or have skin contact	CATEGORY 3 Solid materials which can be ingested by biting, tooth scraping, sucking or licking
HEAVY METALS - EXTRACTABLE, SOLUBLE & RELEASABLE - APPLICABLE FOR TOYS						
Aluminium (Al)	7429-90-5	EN 71-3	Extraction with simulated gastric solution acc. to EN 71-3:2019	2250 mg/kg	560 mg/kg	28130mg/kg
Antimony (Sb)	7440-36-0			45 mg/kg	11.3 mg/kg	560 mg/kg
Arsenic (As)	7440-38-2			3.8 mg/kg	0.9 mg/kg	47 mg/kg
Barium (Ba)	7440-39-3			1500 mg/kg	375 mg/kg	18750 mg/kg
Boron (B)	7440-42-8			1200 mg/kg	300 mg/kg	15000 mg/kg
Cadmium (Cd)	7440-43-9			1.3 mg/kg	0.3 mg/kg	17 mg/kg
Chromium III (Cr III)	7440-47-3			37.5 mg/kg	9.4 mg/kg	460 mg/kg
Chromium VI (Cr VI)	18540-29-9			0.02 mg/kg	0.005 mg/kg	0.053 mg/kg
Cobalt (Co)	7440-48-4			10.5 mg/kg	2.6 mg/kg	130 mg/kg
Copper (Cu)	7440-50-8			622.5 mg/kg	156 mg/kg	7700 mg/kg
Lead (Pb)	7439-92-1			2.0 mg/kg	0.5 mg/kg	23 mg/kg
Manganese (Mn)	7439-96-5			1200 mg/kg	300 mg/kg	15000 mg/kg
Mercury (Hg)	7439-97-6			7.5 mg/kg	1.9 mg/kg	94 mg/kg
Nickel (Ni)	7440-02-0			75 mg/kg	18.8 mg/kg	930 mg/kg
Selenium (Se)	7782-49-2			37.5 mg/kg	9.4 mg/kg	460 mg/kg
Strontium (Sr)	7440-24-6			4500 mg/kg	1125 mg/kg	56000 mg/kg
Tin (Sn)	7440-31-5			15000 mg/kg	3750 mg/kg	180000 mg/kg
Organic Tin (Sn)	various			0.9 mg/kg	0.2 mg/kg	12 mg/kg
Zinc (Zn)	7440-66-6			3750 mg/kg	938 mg/kg	46000 mg/kg

REACH ANNEX: ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 17-01-2022

NUMBER OF SUBSTANCES ON THE CANDIDATE LIST: 223

Substances, preparations and articles will be assessed on their risks for health and environmental aspects

Any producer or importer of Zeeman articles shall submit a notification to Zeeman for any substance contained in those articles, if the following condition is met:

A substance of the candidate list is present in the imported/produced articles with over 0.1% w/w (>1000 mg/kg). **(European Court of Justice judgement of 10-09-2015 case C-106/14 referring to every constituent part of the article)**

[Candidate List of Substances of Very High Concern for authorisation](#)

The identification of a substance as Substance of Very High Concern (SVHC) and its inclusion in the Candidate List is the first step of the authorisation procedure.

Companies may have immediate legal obligations following such inclusion which are linked to the listed substance on its own, in preparations and articles.

Further documentation or more detailed information on the identification process of Substances of Very High Concern can be found on the web pages of ECHA's Member State Committee.

Note: The EC number includes both anhydrous and hydrated forms of a substance and consequently the entries cover both these forms. The CAS number included may be for the anhydrous form only and therefore the CAS number shown does not always describe the entry accurately.

REACH Candidate List RSL 6.0 (version February 2022)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
1	Tris(2-methoxyethoxy)vinylsilane	1067-53-4	2022/01/17	Toxic for reproduction (Article 57c)
2	5-(tricyclo(5.2.1.0'2,6)deca-3-en-8(or 9)-yl O-(isopropyl or isobutyl or 2-ethylhexyl)	255881-94-8	2022/01/17	PBT (Article 57d)
3	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	119-47-1	2022/01/17	Toxic for reproduction (Article 57c)
4	(±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one cover	-	2022/01/17	Endocrine disrupting properties (Article 57(f) - human health)
5	Phenol, alkylation products (mainly in para position) with C12-rich branched alkyl c	210555-94-5 27459-10-5 27147-75-7 121158-58-5 74499-35-7 57427-55-1	2021/07/08	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - human health)
6	Orthoboric acid, sodium salt	25747-83-5 22454-04-2 14312-40-4 1333-73-9 13840-56-7 14890-53-0	2021/07/08	Toxic for reproduction (Article 57c)
7	Medium-chain chlorinated paraffins (MCCP) (UVCB substances consisting of more	1372804-76-6 85535-85-9 - 198840-65-2	2021/07/08	PBT (Article 57d)vPvB (Article 57e)
8	Glutaral	111-30-8	2021/07/08	Respiratory sensitising properties (Article 57(f) - human health)
9	4,4'-(1-methylpropylidene)bisphenol	77-40-7	2021/07/08	Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - human health)

REACH Candidate List RSL 6.0 (version February 2022)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
10	2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers	75166-31-3 80-54-6 75166-30-2	2021/07/08	Toxic for reproduction (Article 57c)
11	2,2-bis(bromomethyl)propane1,3-diol (BMP); 2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA); 2,3-dibromo-1-propanol (2,3-DBPA)	3296-90-0, 36483-57-5, 1522-92-5, 96-13-9	2021/07/08	Carcinogenic (Article 57a)
12	1,4-dioxane	123-91-1	2021/07/08	Carcinogenic (Article 57a) Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)
13	Diocetyl tin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other star	3648-18-8 91648-39-4	2021/01/19	Toxic for reproduction (Article 57c)
14	Bis(2-(2-methoxyethoxy)ethyl)ether	143-24-8	2021/01/19	Toxic for reproduction (Article 57c)
15	Dibutylbis(pentane-2,4-dionato-O,O')tin	22673-19-4	2020/06/25	Toxic for reproduction (Article 57c)
16	butyl 4-hydroxybenzoate	94-26-8	2020/06/25	Endocrine disrupting properties (Article 57(f) - human health)
17	2-methylimidazole	693-98-1	2020/06/25	Toxic for reproduction (Article 57c)
18	1-vinylimidazole	1072-63-5	2020/06/25	Toxic for reproduction (Article 57c)
19	Perfluorobutane sulfonic acid (PFBS) and its salts	-	2020/01/16	Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)
20	Diisohexyl phthalate	71850-09-4	2020/01/16	Toxic for reproduction (Article 57c)
21	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	71868-10-5	2020/01/16	Toxic for reproduction (Article 57c)
22	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	119313-12-1	2020/01/16	Toxic for reproduction (Article 57c)
23	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides	-	2019/07/16	Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)
24	2-methoxyethyl acetate	110-49-6	2019/07/16	Toxic for reproduction (Article 57c)
25	4-tert-butylphenol	98-54-4	2019/07/16	Endocrine disrupting properties (Article 57(f) - environment)
26	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	-	2019/07/16	Endocrine disrupting properties (Article 57(f) - environment)
27	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one	15087-24-8	2019/01/15	Endocrine disrupting properties (Article 57(f) - environment)
28	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	2019/01/15	Toxic for reproduction (Article 57c)

REACH Candidate List RSL 6.0 (version February 2022)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
29	Benzo[k]fluoranthene	207-08-9	2019/01/15	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
30	Fluoranthene	206-44-0 93951-69-0	2019/01/15	PBT (Article 57d) vPvB (Article 57e)
31	Phenanthrene	85-01-8	2019/01/15	vPvB (Article 57e)
32	Pyrene	129-00-0 1718-52-1	2019/01/15	PBT (Article 57d) vPvB (Article 57e)
33	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride	552-30-7	2018/06/27	Respiratory sensitising properties (Article 57(f) - human health)
34	Benzo[ghi]perylene	191-24-2	2018/06/27	PBT (Article 57d) vPvB (Article 57e)
35	Decamethylcyclopentasiloxane	541-02-6	2018/06/27	PBT (Article 57d) vPvB (Article 57e)
36	Dicyclohexyl phthalate (DCHP)	84-61-7	2018/06/27	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health)
37	Disodium octaborate	12008-41-2	2018/06/27	Toxic for reproduction (Article 57c)
38	Dodecamethylcyclohexasiloxane	540-97-6	2018/06/27	PBT (Article 57d) vPvB (Article 57e)
39	Ethylenediamine	107-15-3	2018/06/27	Respiratory sensitising properties (Article 57(f) - human health)
40	Lead	7439-92-1	2018/06/27	Toxic for reproduction (Article 57c)
41	Octamethylcyclotetrasiloxane	556-67-2	2018/06/27	PBT (Article 57d) vPvB (Article 57e)
42	Terphenyl, hydrogenated	61788-32-7	2018/06/27	vPvB (Article 57e)
43	Benz[a]anthracene	56-55-3, 1718-53-2	2018/01/15	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
44	Cadmium carbonate	513-78-0	2018/01/15	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)
45	Cadmium hydroxide	21041-95-2	2018/01/15	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)

REACH Candidate List RSL 6.0 (version February 2022)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
46	Cadmium nitrate	10022-68-1 10325-94-7	2018/01/15	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)
47	Chrysene	218-01-9 1719-03-5	2018/01/15	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
48	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	2018/01/15	vPvB (Article 57e)
49	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	-	2018/01/15	Endocrine disrupting properties (Article 57(f) - environment)
50	Perfluorohexane-1-sulphonic acid and its salts PFHxS	-	2017/07/07	vPvB (Article 57 e)
51	4,4'-isopropylidenediphenol Bisphenol A; BPA	80-05-7	2017/01/12	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - human health)
52	4-heptylphenol, branched and linear substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof	-	2017/01/12	Equivalent level of concern having probable serious effects to the environment (Article 57 f)
53	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3830-45-3 3108-42-7 335-76-2	2017/01/12	Toxic for reproduction (Article 57 c) PBT (Article 57 d)
54	p-(1,1-dimethylpropyl)phenol	80-46-6	2017/01/12	Equivalent level of concern having probable serious effects to the environment (Article 57 f)
55	Benzo{def}chrysene	50-32-8	2016/20/06	Carcinogenic (Article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); PBT (Article 57 d); vPvB (Article 57 e)
56	1,3-propanesultone	1120-71-4	2015/12/15	Carcinogenic (Article 57a);
57	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	2015/12/15	vPvB (Article 57 e)
58	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	2015/12/15	vPvB (Article 57 e)
59	Nitrobenzene	98-95-3	2015/12/15	Toxic for reproduction (Article 57c)
60	Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4	2015/12/15	Toxic for reproduction (Article 57c); PBT (Article 57 d)
61	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5)	68515-51-5 68648-93-1	2015/06/15	Toxic for reproduction (Article 57 c)

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No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
62	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	-	2015/06/15	vPvB (Article 57e)
63	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	2014/12/17; 2008/10/28	Equivalent level of concern having probable serious effects to the environment (Article 57 f); Toxic for reproduction (article 57c)
64	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	2014/12/17	Toxic for reproduction (Article 57 c)
65	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	2014/12/17	PBT (Article 57 d); vPvB (Article 57 e)
66	reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	-	2014/12/17	Toxic for reproduction (Article 57 c)
67	Cadmium fluoride	7790-79-6	2014/12/17	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)
68	Cadmium sulphate	10124-36-4 31119-53-6	2014/12/17	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)
69	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	2014/12/17	PBT (Article 57 d); vPvB (Article 57 e)
70	Cadmium chloride	10108-64-2	2014/06/16	Carcinogenic (Article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); Equivalent level of concern having probable serious effects to human health (Article 57 f)
71	Sodium peroxometaborate	.7632-04-4	2014/06/16	Toxic for reproduction (Article 57 c)
72	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	2014/06/16	Toxic for reproduction (Article 57 c)
73	Sodium perborate; perboric acid, sodium salt	-	2014/06/16	Toxic for reproduction (Article 57 c)
74	Trixylyl phosphate	25155-23-1	2013/12/16	Toxic for reproduction (Article 57 c);
75	Lead di(acetate)	301-04-2	2013/12/16	Toxic for reproduction (Article 57 c);
76	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	2013/12/16	Toxic for reproduction (Article 57 c);
77	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	2013/12/16	Carcinogenic (Article 57a);
78	Cadmium sulphide	1306-23-6	2013/12/16	Carcinogenic (Article 57a);
79	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	2013/12/16	Carcinogenic (Article 57a);
80	Dihexyl phthalate	84-75-3	2013/12/16	Toxic for reproduction (Article 57 c);
81	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	2013/06/20	Toxic for reproduction (Article 57 c);

REACH Candidate List RSL 6.0 (version February 2022)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
82	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	-	2013/06/20	Equivalent level of concern having probable serious effects to the environment (Article 57 f)
83	Pentadecafluorooctanoic acid (PFOA)	335-67-1	2013/06/20	Toxic for reproduction (Article 57 c);
84	Dipentyl phthalate (DPP)	131-18-0	2013/06/20	Toxic for reproduction (Article 57 c);
85	Cadmium	7440-43-9	2013/06/20	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)
86	Cadmium oxide	1306-19-0	2013/06/20	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)
87	4,4'-methylenedi-o-toluidine	838-88-0	2012/12/19	Carcinogenic (Article 57a)
88	N-pentyl-isopentylphthalate	776297-69-9	2012/12/19	Toxic for reproduction (Article 57 c)
89	4-Aminoazobenzene	60-09-3	2012/12/19	Carcinogenic (Article 57a)
90	Orange lead (lead tetroxide)	1314-41-6	2012/12/19	Toxic for reproduction (Article 57 c)
91	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	2012/12/19	Toxic for reproduction (Article 57 c)
92	Dimethyl sulphate	77-78-1	2012/12/19	Carcinogenic (Article 57a)
93	Heptacosafuorotetradecanoic acid	376-06-7	2012/12/19	vPvB (Article 57 e)
94	Lead titanium zirconium oxide	12626-81-2	2012/12/19	Toxic for reproduction (Article 57 c)
95	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	-	2012/12/19	Equivalent level of concern having probable serious effects to the environment (Article 57 f)
96	6-methoxy-m-toluidine (p-cresidine)	120-71-8	2012/12/19	Carcinogenic (Article 57a)
97	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	2012/12/19	Toxic for reproduction (Article 57 c)
98	1,2-Diethoxyethane	629-14-1	2012/12/19	Toxic for reproduction (Article 57 c)
99	Sulfurous acid, lead salt, dibasic	62229-08-7	2012/12/19	Toxic for reproduction (Article 57 c)
100	1-bromopropane (n-propyl bromide)	106-94-5	2012/12/19	Toxic for reproduction (Article 57 c)
101	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	2012/12/19	PBT (Article 57 d); vPvB (Article 57 e)
102	Biphenyl-4-ylamine	92-67-1	2012/12/19	Carcinogenic (Article 57a)
103	Pentalead tetraoxide sulphate	12065-90-6	2012/12/19	Toxic for reproduction (Article 57 c)
104	Silicic acid, lead salt	11120-22-2	2012/12/19	Toxic for reproduction (Article 57 c)
105	o-Toluidine	95-53-4	2012/12/19	Carcinogenic (Article 57a)
106	Acetic acid, lead salt, basic	51404-69-4	2012/12/19	Toxic for reproduction (Article 57 c)
107	Dioxobis(stearato)trilead	12578-12-0	2012/12/19	Toxic for reproduction (Article 57 c)
108	Lead bis(tetrafluoroborate)	13814-96-5	2012/12/19	Toxic for reproduction (Article 57 c)
109	Lead dinitrate	10099-74-8	2012/12/19	Toxic for reproduction (Article 57 c)
110	Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), lead-doped [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]	68784-75-8	2012/12/19	Toxic for reproduction (Article 57 c)

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No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
111	Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry]	85-42-7 13149-00-3 14166-21-3	2012/12/19	Equivalent level of concern having probable serious effects to human health (Article 57 f)
112	N-methylacetamide	79-16-3	2012/12/19	Toxic for reproduction (Article 57 c)
113	Pyrochlore, antimony lead yellow	8012-00-8	2012/12/19	Toxic for reproduction (Article 57 c)
114	Lead monoxide (lead oxide)	1317-36-8	2012/12/19	Toxic for reproduction (Article 57 c)
115	Tetralead trioxide sulphate	12202-17-4	2012/12/19	Toxic for reproduction (Article 57 c)
116	Trilead bis(carbonate)dihydroxide	1319-46-6	2012/12/19	Toxic for reproduction (Article 57 c)
117	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	2012/12/19	Equivalent level of concern having probable serious effects to human health (Article 57 f)
118	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	2012/12/19	Toxic for reproduction (Article 57 c)
119	N,N-dimethylformamide	68-12-2	2012/12/19	Toxic for reproduction (Article 57 c)
120	Tetraethyllead	78-00-2	2012/12/19	Toxic for reproduction (Article 57 c)
121	Methyloxirane (Propylene oxide)	75-56-9	2012/12/19	Carcinogenic (Article 57a); Mutagenic (Article 57b)
122	4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	-	2012/12/19	Equivalent level of concern having probable serious effects to the environment (Article 57 f)
123	Fatty acids, C16-18, lead salts	91031-62-8	2012/12/19	Toxic for reproduction (Article 57 c)
124	Trilead dioxide phosphonate	12141-20-7	2012/12/19	Toxic for reproduction (Article 57 c)
125	o-aminoazotoluene	97-56-3	2012/12/19	Carcinogenic (Article 57a)
126	[Phthalato(2-)]dioxotrilead	69011-06-9	2012/12/19	Toxic for reproduction (Article 57 c)
127	Tricosafuorododecanoic acid	307-55-1	2012/12/19	vPvB (Article 57 e)
128	Lead oxide sulfate	12036-76-9	2012/12/19	Toxic for reproduction (Article 57 c)
129	Methoxyacetic acid	625-45-6	2012/12/19	Toxic for reproduction (Article 57 c)
130	Diisopentylphthalate	605-50-5	2012/12/19	Toxic for reproduction (Article 57 c)
131	Lead cyanamidate	20837-86-9	2012/12/19	Toxic for reproduction (Article 57 c)
132	4,4'-oxydianiline and its salts	101-80-4	2012/12/19	Carcinogenic (Article 57a); Mutagenic (Article 57b)
133	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	2012/12/19	Carcinogenic (Article 57a)
134	Henicosafuoroundecanoic acid	2058-94-8	2012/12/19	vPvB (Article 57 e)
135	Furan	110-00-9	2012/12/19	Carcinogenic (Article 57a)
136	Pentacosafuorotridecanoic acid	72629-94-8	2012/12/19	vPvB (Article 57 e)
137	Diethyl sulphate	64-67-5	2012/12/19	Carcinogenic (Article 57a); Mutagenic (Article 57b)
138	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	25550-51-0 19438-60-9 48122-14-1 57110-29-9	2012/12/19	Equivalent level of concern having probable serious effects to human health (Article 57 f)

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No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
139	Dibutyltin dichloride (DBTC)	683-18-1	2012/12/19	Toxic for reproduction (Article 57 c)
140	Lead titanium trioxide	12060-00-3	2012/12/19	Toxic for reproduction (Article 57 c)
141	Formamide	75-12-7	2012/06/18	Toxic for reproduction (Article 57 c)
142	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	2580-56-5	2012/06/18	Carcinogenic (Article 57a)
143	Diboron trioxide	1303-86-2	2012/06/18	Toxic for reproduction (Article 57 c)
144	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	2012/06/18	Carcinogenic (Article 57a)
145	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	2012/06/18	Toxic for reproduction (Article 57 c)
146	Lead(II) bis(methanesulfonate)	17570-76-2	2012/06/18	Toxic for reproduction (Article 57 c)
147	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	6786-83-0	2012/06/18	Carcinogenic (Article 57a)
148	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	2451-62-9	2012/06/18	Mutagenic (Article 57b)
149	4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	548-62-9	2012/06/18	Carcinogenic (Article 57a)
150	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	561-41-1	2012/06/18	Carcinogenic (Article 57a)
151	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	2012/06/18	Carcinogenic (Article 57a)
152	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	59653-74-6	2012/06/18	Mutagenic (Article 57b)
153	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	2012/06/18	Toxic for reproduction (Article 57 c)
154	Lead styphnate	15245-44-0	2011/12/19	Toxic for reproduction (article 57 c)
155	Calcium arsenate	7778-44-1	2011/12/19	Carcinogenic (article 57 a)
156	Bis(2-methoxyethyl) ether	111-96-6	2011/12/19	Toxic for reproduction (article 57 c)
157	Phenolphthalein	77-09-8	2011/12/19	Carcinogenic (article 57 a)
158	Arsenic acid	7778-39-4	2011/12/19	Carcinogenic (article 57 a)
159	2-Methoxyaniline; o-Anisidine	90-04-0	2011/12/19	Carcinogenic (article 57 a)
160	Potassium hydroxyoctaoxodizincatedichromate	11103-86-9	2011/12/19	Carcinogenic (article 57 a)
161	Bis(2-methoxyethyl) phthalate	117-82-8	2011/12/19	Toxic for reproduction (article 57 c)
162	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	2011/12/19	Equivalent level of concern having probable serious effects to the environment (article 57 f)
163	Dichromium tris(chromate)	24613-89-6	2011/12/19	Carcinogenic (article 57 a)
164	Pentazinc chromate octahydroxide	49663-84-5	2011/12/19	Carcinogenic (article 57 a)

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No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
165	Aluminosilicate Refractory Ceramic Fibres are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm) c) alkaline oxide and alkali earth oxide (Na ₂ O+K ₂ O+CaO+MgO+BaO) content less or equal to 18% by weight	-	2011/12/19	Carcinogenic (article 57 a)
166	Lead dipicrate	6477-64-1	2011/12/19	Toxic for reproduction (article 57 c)
167	N,N-dimethylacetamide	127-19-5	2011/12/19	Toxic for reproduction (article 57 c)
168	1,2-dichloroethane	107-06-2	2011/12/19	Carcinogenic (article 57 a)
169	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	2011/12/19	Carcinogenic (article 57 a)
170	Trilead diarsenate	3687-31-8	2011/12/19	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
171	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	2011/12/19	Carcinogenic (article 57 a)
172	Lead diazide, Lead azide	13424-46-9	2011/12/19	Toxic for reproduction (article 57 c),
173	Zirconia Aluminosilicate Refractory Ceramic Fibres are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm). c) alkaline oxide and alkali earth oxide (Na ₂ O+K ₂ O+CaO+MgO+BaO) content less or equal to 18% by weight		2011/12/19	Carcinogenic (article 57 a)
174	Cobalt dichloride	7646-79-9	2011/06/20 - 2008/10/28	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
175	1-Methyl-2-pyrrolidone	872-50-4	2011/06/20	Toxic for reproduction (article 57c)
176	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	2011/06/20	Toxic for reproduction (article 57c)
177	Hydrazine	302-01-2 7803-57-8	2011/06/20	Carcinogenic (article 57a)
178	1,2,3-Trichloropropane	96-18-4	2011/06/20	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
179	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	2011/06/20	Toxic for reproduction (article 57c)
180	Strontium chromate	7789-06-2	2011/06/20	Carcinogenic (article 57a)
181	2-Ethoxyethyl acetate	111-15-9	2011/06/20	Toxic for reproduction (article 57c)
182	2-Ethoxyethanol	110-80-5	2010/12/15	Toxic for reproduction (article 57c)
183	Cobalt(II) diacetate	71-48-7	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
184	Cobalt(II) carbonate	513-79-1	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
185	Cobalt(II) sulphate	10124-43-3	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)

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No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
186	Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid.	7738-94-5 13530-68-2	2010/12/15	Carcinogenic (article 57a)
187	Cobalt(II) dinitrate	10141-05-6	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
188	Chromium trioxide	1333-82-0	2010/12/15	Carcinogenic and mutagenic (articles 57 a and 57 b)
189	2-Methoxyethanol	109-86-4	2010/12/15	Toxic for reproduction (article 57c)
190	Trichloroethylene	79-01-6	2010/06/18	Carcinogenic (article 57 a)
191	Sodium chromate	7775-11-3	2010/06/18	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
192	Boric acid	10043-35-3 11113-50-1	2010/06/18	Toxic for reproduction (article 57 c)
193	Potassium chromate	7789-00-6	2010/06/18	Carcinogenic and mutagenic (articles 57 a and 57 b).
194	Tetraboron disodium heptaoxide, hydrate	12267-73-1	2010/06/18	Toxic for reproduction (article 57 c)
195	Potassium dichromate	7778-50-9	2010/06/18	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
196	Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3	2010/06/18	Toxic for reproduction (article 57 c)
197	Ammonium dichromate	7789-09-5	2010/06/18	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
198	Acrylamide	79-06-1	2010/03/30	Carcinogenic and mutagenic (articles 57 a and 57 b)
199	2,4-Dinitrotoluene	121-14-2	2010/01/13	Carcinogenic (article 57a)
200	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8	2010/01/13	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
201	Anthracene oil, anthracene-low	90640-82-7	2010/01/13	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)
202	Pitch, coal tar, high temp.	65996-93-2	2010/01/13	Carcinogenic, PBT and vPvB (articles 57a, 57d and 57e)
203	Anthracene oil, anthracene paste	90640-81-6	2010/01/13	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)
204	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	2010/01/13	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
205	Lead chromate	7758-97-6	2010/01/13	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
206	Anthracene oil	90640-80-5	2010/01/13	Carcinogenic ¹ , PBT and vPvB (articles 57a, 57d and 57e)
207	Diisobutyl phthalate	84-69-5	2010/01/13	Toxic for reproduction (article 57c)
208	Tris(2-chloroethyl)phosphate	115-96-8	2010/01/13	Toxic for reproduction (article 57c)
209	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	2010/01/13	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)
210	Anthracene oil, anthracene paste, distn. lights	91995-17-4	2010/01/13	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)
211	4,4'- Diaminodiphenylmethane (MDA)	101-77-9	2008/10/28	Carcinogenic (article 57a)
212	Triethyl arsenate	15606-95-8	2008/10/28	Carcinogenic (article 57a)
213	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	2008/10/28	vPvB (article 57e)
214	Benzyl butyl phthalate (BBP)	85-68-7	2008/10/28	Toxic for reproduction (article 57c)
215	Sodium dichromate	7789-12-0 10588-01-9	2008/10/28	Carcinogenic, mutagenic and toxic for reproduction (articles 57a, 57b and 57c)
216	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	2008/10/28	PBT and vPvB (articles 57 d and 57 e)

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No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
217	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	2008/10/28	PBT (article 57d)
218	Anthracene	120-12-7	2008/10/28	PBT (article 57d)
219	Dibutyl phthalate (DBP)	84-74-2	2008/10/28	Toxic for reproduction (article 57c)
220	Lead hydrogen arsenate	7784-40-9	2008/10/28	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
221	Diarsenic trioxide	1327-53-3	2008/10/28	Carcinogenic (article 57a)
222	Diarsenic pentaoxide	1303-28-2	2008/10/28	Carcinogenic (article 57a)
223	Bis(tributyltin)oxide (TBTO)	56-35-9	2008/10/28	PBT (article 57d)

Change Log RSL 6.0 (version February 2022)

CHEMICAL GROUP (RSL)	CHANGE LOG MAJOR CHANGES FROM RSL 5.0 TO RSL 6.0
ALKYLPHENOLS (AP) AND ALKYLPHENOL ETHOXYLATES (APEO)	Adjusted the limit of Alkylphenol (AP)
AZO AMINES AND ARYLAMINE SALTS	Adjusted the limit Updated the test method for leather
BIOCIDES	Updated the test method of Dimethylfumurate
CHLOROBENZENES AND CHLOROTOLUENES	No changes
CHLORINATED PARAFFINS	Updated the test method
CHLOROPHENOLS	Updated the test method
DISPERSE DYES WHICH ARE CLASSIFIED TO BE ALLERGENIC	Adjusted the limit
DYES WHICH ARE CLASSIFIED TO BE CARCINOGENIC	Adjusted the limit
DYES WHICH ARE ADDITIONALLY RESTRICTED	Adjusted the limit
FLAME RETARDENTS	No changes
FORMALDEHYDE	Adjusted the limit for direct skin contact products (jackets and outerwear) and added additional information on the Annex XVII entry 72 REACH restriction for these products Updated the test method
HEAVY METALS EXTRACTABLE	Updated the test method for leather Added the exemption for Copper in metal parts and lead in Crystal glass.
HEAVY METALS EXTRACTABLE CHROMIUM VI	No changes
HEAVY METALS TOTAL CONTENT	Updated the test method for leather Adjusted the limit for Cadmium
HEAVY METALS RELEASABLE NICKEL	Updated the test method
MONOMERS	New group including Styrene, Free and Vinyl Chloride
N-NITROSAMINES	No changes

Change Log RSL 6.0 (version February 2022)

CHEMICAL GROUP (RSL)	CHANGE LOG MAJOR CHANGES FROM RSL 5.0 TO RSL 6.0
ORGANOTIN COMPOUNDS	Updated the test method
OTHER ATTENTION POINTS	Adjusted the limit for pH Leather Updated the test methods
OTHER RESTRICTED CHEMICALS	Adjusted the limit for Bisphenol Updated the test method for Ortho-phenylphenol
PERFLUORINATED CHEMICALS AND HER COMPOUNDS	Updated the test method
PESTICIDES	No changes
PHTHALATES	Adjusted the limit
POLYCYCLIC AROMATIC HYDROCARBONS (PAH'S)	No changes
POLYMERS & POLYMER AUXILIARIES	Changed the name of the group into PVC AND LATEX Moved Vinyl Chloride to the new group of MONOMERS
RESTRICTION ON PACKAGING	No changes
UV ABSORBERS	Updated the test method
SOLVENTS HALOGENATED - VOLATILE ORGANIC COMPOUNDS	No changes
SOLVENTS OTHER - VOLATILE ORGANIC COMPOUNDS	No changes
RISK MATRIX	Updated according to new RSL
MRSLS	Updated according to ZDHC MRSLS version February 2022 MRSLS is a separate document
APPENDIX	No changes
REACH CANDIDATE LIST	Updated from 209 substances to 223 substances
EN 71-3	Updated the limit for extractable Aluminium and Chromium VI (CRVI)