

hunkemöller

RESTRICTED SUBSTANCES LIST HUNKEMÖLLER

("RSL") 2.0

JUNE 2018

INTRODUCTION

The production of apparel from raw materials to finished products is a long process. It starts with fibres via spinning, weaving or knitting, bleaching, dyeing, printing, washing, cutting and sewing to a garment. The processes are not only mechanical but they can be considered as chemical intensive and complex.

Hunkemöller has committed itself to develop responsible chemical management procedures for all products, including accessories attached to garments, prints and packaging materials. Hunkemöller expects the same commitment from its suppliers and have therefore developed a Restricted Substances List (Hunkemöller RSL 2.0) to inform all suppliers on all chemicals that are banned or restricted in Hunkemöller's production processes and finished products. The purpose of a Restricted Substances List (RSL) is to reduce the use of hazardous substances in the textile and apparel supply chain.

Our RSL includes;

1. Legal requirements inside and outside the EU.
2. Attention points in requirements from Eco label organisations or mentioned by NGO's, like Greenpeace.

A valid OEKO-TEX® Standard 100 product certificate issued by the OEKO-TEX® Association (www.oeko-tex.com) covers most of requirements of this RSL. The new OEKO-TEX® certification is called Sustainable Textile Production (STeP) (replacement of OEKO-TEX® Standard 1000) and has a wider scope: it covers also environmental aspects on the production site. Certification according to Oeko-Tex ® Standard 100 or STeP can be more cost effective than single tests. Input Stream Management of the Bluesign® system (www.bluesign.com), for unsustainable substances to be eliminated upfront or meeting the EU Ecolabel (www.ecolabel.eu) requirements is also a cost effective way to fulfil obligations of this RSL. Please inform us if you or any of your vendors has one of these certifications.

Please be prepared that your contact person could request a signature for each order to declare that the specific order complies with our RSL requirements. Also it can be possible that one of your styles will be selected for pre-delivery testing at a certified laboratory.

As matter of general principle, Hunkemöller reserves the right to select styles to be (counter) tested upon arrival in our warehouse. If this post-test is a "FAIL", all the cost incurred in this testing procedure shall be borne by the supplier, including all additional cost for non-marketable styles.

As a result of a dynamic process this RSL will be updated on a regular basis in order to assist in the development of responsible entrepreneurship and they can be used as a basis for the development of Quality Management Systems.

In case of any question, please contact your Hunkemöller contact person.

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- 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	BLENDED FIBERS	SYNTHETIC FIBERS	ARTIFICIAL LEATHER (WITH FIBER BACKING)	COATING AND PRINTS	NATURAL MATERIALS	POLYMERS, PLASTICS, FOAMS, NATURAL & SYNTHETIC RUBBER	METAL	FEATHER & DOWN	GLUE
ALKYLPHENOLS AND ALKYPHENOL ETHOXYLATES	●●●	●●●	●●●	●●●	●●●	●●●	●●●		●	●●●
AZO DYES	●●●	●●●	●●●	●●●	●●●	●●●			●●●	
BIOCIDES	●	●	●	●	●		●			
CHLOROBENZENES AND CHLOROTOLUENES		●●	●●							
CHLORINATED PARAFFINS	●	●	●	●	●●		●●			
CHLORINATED PHENOLS PCP & TECP	●	●		●	●				●	
ALLERGENIC DISPERSE DYES		●●	●●	●●	●●					
CARCINOGENIC DYES	●●	●●	●●	●●	●●					
FLAME RETARDENTS	●	●	●	●	●	●	●●		●●	
FORMALDEHYDE	●●●	●●●	●●●	●●●	●●●	●●●				●●●
HEAVY METALS EXTRACTABLE & SOLUBLE	●●	●●	●●	●●	●●		●●			
CHROMIUM VI	●									
HEAVY METALS TOTAL CONTENT LEAD & CADMIUM				●	●		●	●		
HEAVY METALS, RELEASABLE NICKLE								●●●		
ORGANOTIN COMPOUNDS	●	●	●	●	●		●			●
PERFLUORINATED CHEMICALS PFOS & PFOA	●● (If water- or stain-repellant finish is applied)								●●	
PHthalATES				●●●	●●●		●●●			●●●
POLYCLIC AROMATIC HYDROCARBONS				●●●	●●●		●●●			●●●
PVC					●●		●●			
SOLVENTS HALOGENATED AND OTHERS - VOLATILE ORGANIC COMPOUNDS	●●	●●	●●	●●	●●		●●			●●
pH	●●	●●	●●	●●						

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
ALKYLPHENOLS (AP) AND ALKYLPHENOL ETHOXYLATES (APEO)				
Nonylphenols (NP)	11066-49-2 25154-52-3 84852-15-3	Textiles: ISO 18254-1:2016	< 10 mg/kg	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, degumming for silk production, dyes and pigment preparations, polyester padding and down/feather fillings. APs are used as intermediaries in the manufacture of APEOs and antioxidants used to protect or stabilize polymers. Biodegradation of APEOs into APs is the main source of APs in the environment.
Octylphenols (OP)	140-66-9 1806-26-4 27193-28-8			
Nonylphenoethoxylates (NPEO)	9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0		< 100 mg/kg	
Octylphenoethoxylates (OPEO)	9002-93-1 9036-19-5 68987-90-6			
AZO DYES WHICH BY REDUCTIVE CLEAVAGE MAY RELEASE ONE OR MORE AROMATIC ARYLAMINES				
4-Aminobiphenyl	92-67-1	Textiles : EN 14362-1:2017 Test Method for confirmation of 4-Aminoazobenzene (4AAB) Textiles (EU): EN ISO 14362-3: 2017	< 20 mg/kg	Azo dyes and pigments are colourants that incorporate one or several azo groups (-N=N-) bound with aromatic compounds. Thousands of azo dyes exist, but only those which degrade to form the listed cleavable amines are restricted. . Azo dyes that release these amines are regulated and should no longer be used for dyeing of textiles. The listed arylamines are considered to be carcinogenic.
Benzidine	92-87-5			
4-Chloro-o-toluidine	95-69-2			
2-Naphtylamine	91-59-8			
o-Aminoazotoluene	97-56-3			
2-Amino-4-nitrotoluene	99-55-8			
4-Chloroaniline	106-47-8			
2,4-Diaminoanisole	615-05-4			
4,4'-Diaminodiphenylmethane	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'-Methylen-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	95-80-7			
2,4,5-Trimethylaniline	137-17-7			
2-Methoxyaniline (= o-Anisidine)	90-04-0			
p-Aminoazobenzene	60-09-3			
2,4-Xylidine	95-68-1			
2,6-Xylidine	87-62-7			

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
BIOCIDES				
Dimethylfumarate	624-49-7	ISO 16186:2012	Not detected Detection limit: < 0.1 mg/kg	Dimethyl fumarate (DMFu) is a fungicide used to prevent mould in leather and textiles. Can be used in sachets in packaging to prevent the buildup of mold, especially during shipping. DMFu can cause acute dermatitis, eczema, and general fatigue to the persons who have been in contact with this substance.
Triclosan	3380-34-5	ISO 13365:2011	Not detected Detection limit: < 1 mg/kg	Triclosan can be used as disinfectant and as antibacterial agent in textiles. Triclosan can damage the liver, kidneys, heart and lungs, suppresses the immune system.
CHLOROBENZENES AND CHLOROTOLUENES				
Pentachlorobenzenes (PCB)	608-93-5	DIN 54232:2010	< 1 mg/kg (total).	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. They can also be used as solvents Most of these carriers are toxic to humans and aquatic organisms, and some are even carcinogenic.
Hexachlorobenzene (HCB)	118-74-1			
Trichlorobenzenes:				
1,2,3-TriCB	87-61-6			
1,2,4-TriCB	120-82-1			
1,3,5-TriCB	108-70-3			
Tetrachlorobenzenes:				
1,2,3,4-TeCB	634-66-2			
TeCB	634-90-2			
TeCB	95-94-3			
Chlorobenzene	108-90-7			
Dichlorobenzenes:				
1,2-DiCB	95-50-1			
1,3-DiCB	541-73-1			
4-DiCB	106-46-7			
Monochlorotoluenes:				
2-CT	95-49-8			
3-CT	108-41-8			
4-CT	106-43-4			
chlorotoluene	100-44-7			
Dichlorotoluenes:				
2,3-DiCT	32768-54-0			
2,4-DiCT	95-73-8			
2,5-DiCT	19398-61-9			
2,6-DiCT	118-69-4			
3,4-DiCT	95-75-0			
3,5-DiCT	25186-47-4			
Trichlorotoluenes:				
2,3,6-TRICT	2077-46-5			
TRICT	6639-30-1			
TRICT	98-07-7			
Tetrachlorotoluenes:				
α,α,α,4-TetraCT	5216-25-1			
2,3,4,5-TetraCT	1006-32-2			
TetraCT	76057-12-0			
2,3,5,6-TetraCT	875-40-1			
Pentachlorotoluenes	1006-31-1			
	877-11-2			

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
CHLORINATED PARAFFINS				
Short-chain chlorinated paraffins (SCCP) (C10-C13)	85535-84-8	EN ISO 18219: 2015	< 1000 mg/kg	SCCP's: may be used as softeners, flame retardants and as plasticizer in polymer production. Can also used for fat liquoring of leather. SCCP's may cause long-term adverse effects in the aquatic environment.
CHLOROPHENOLS				
Pentachlorophenol (PCP)	87-86-5	Extraction with KOH followed by GC-MS* *In case of results close to limit value (+/- 10 %) re-test with reference method: §64 LFGB BVL B 82.02-8 (2001) (for textiles)	< 0.5 mg/kg each	Chlorophenols are polychlorinated compounds used as preservatives or pesticides. Pentachlorophenol (PCP) and tetrachlorophenol (TeCP) are sometimes used to prevent mold and kill insects when growing cotton and when storing/ transporting fabrics. PCP and TeCP can also be used as preservatives in print pastes.
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 (TrCP)	15950-66-0			
2,3,5-Trichlorophenol (TrCP)	933-78-8			
2,3,6-Trichlorophenol (TrCP)	933-75-5			
2,4,5-Trichlorophenol (TrCP)	95-95-4			
2,4,6-Trichlorophenol (TrCP)	88-06-2			
3,4,5-Trichlorophenol (TrCP)	609-19-8			
DISPERSE DYES WHICH ARE CLASSIFIED TO BE ALLERGENIC				
C.I. Disperse Blue 1	2475-45-8	DIN 54231:2005	< 50 mg/kg	Disperse dyes are a class of water- insoluble dyes that penetrate the fibre system of synthetic or manufactured fibres and are held in place by physical forces without forming chemical bonds. They are mainly used for dyeing polyester, nylon and cellulose acetate. Some disperse dyes have an allergenous potential to the human skin and are a possible threat to health, especially if the dyes are not colour fast to perspiration. A number of disperse dyes are legally restricted outside the EU. Most of them appear in RSL's of international retailers.
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 35	12222-75-2			
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 37/59/76	12223-33-5 / 13301-61-6			
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 Yellow 1	119-15-3			
C.I. Disperse Yellow 3	2832-40-8			
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			

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
DYES WHICH ARE CLASSIFIED TO BE CARCINOGENIC				
C.I. Disperse Blue 1	2475-45-8	DIN 54231:2005	< 50 mg/kg	These dyestuffs are considered to be carcinogenic.
C.I. Direct Blue 6	2602-46-2			
C.I. Disperse Yellow 3	2832-40-8			
C.I. Disperse Orange 11	82-28-0			
C.I. Direct Red 28	573-58-0			
C.I. Direct Black 38	1937-37-7			
C.I. Basic Red 9	569-61-9			
C.I. Basic Violet 14	632-99-5			
C.I. Acid Red 26	3761-53-3			
C.I. Basic Violet 3 (with $\geq 0.1\%$ Michler's ketone or base)	548-62-9			
C.I. Basic Blue 26 (with $\geq 0.1\%$ Michler's ketone or base)	2580-56-5			
C.I. Pigment Red 104	12656-85-8			
C.I. Pigment Yellow 34	1344-37-2			
C.I. Solvent Yellow 1 (Aniline Yellow / 4-Aminoazobenzene)	60-09-3			
C.I. Solvent Yellow 3 (o-Aminoazotoluene / o-Aminoazotoluol)	97-56-3			
C.I. Direct Brown 95	16071-86-6			
C.I. Direct Blue 15	2429-74-5			
C.I. Acid Red 114	6459-94-5			
DYES WHICH ARE ADDITIONALLY RESTRICTED				
C.I. Basic Green 4 (oxalate, chloride or free)	2437-29-8 569-64-2 10309-95-2	DIN 54231:2005	< 50 mg/kg	These dyestuffs are considered to be carcinogenic, harmful to the environment, or can cause allergenic reactions.
C.I. Solvent Yellow 2	60-11-7			
C.I. Disperse Navy Blue	118685-33-9			
Component 1: Component 2:				
4-chloro-o-toluidinium chloride	3165-93-3			
2-Naphthylammoniumacetate	553-00-4			
4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate	39156-41-7			
2,4,5-trimethylaniline hydrochloride	21436-97-5		< 30 mg/kg	

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
FLAME RETARDENTS				
Heptabromodiphenyl ether (HeptaBDE)	446255-22-7 207122-16-5	EN ISO 17881 1&2: 2016 In-house method: GC-MS/ GC- NPD/MS/LC-MS analysis	Usage ban Detection limit: 10 mg/kg	Flame-retardant chemicals, including the entire class of Organohalogen flame retardants, should no longer be used. These types of flame retardants are toxic and are suspected to be carcinogenic. They persist in the environment and food chain, and are likely to pass up the food chain. Flame retardants are often applied to consumer products including textiles, plastics, foams.
Hexabromodiphenyl ether (HexaBDE)	68631-49-2 207122-15-4 36483-60-0			
Tetrabromodiphenyl ether (TetraBDE)	5436-43-1			
2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0			
Bis-(2,3-dibromopropyl)phosphate (BIS)	5412-25-9			
Diboron trioxide	1303-86-2			
Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3			
Tetrabromobisphenol A (TBBPA)	79-94-7			
Octabromodiphenyl Ether (OctaBDE)	32536-52-0			
Decabromodiphenyl Ether (DecaBDE)	1163-19-5			
Pentabromodiphenyl ether (PentaBDE)	32534-81-9 60348-60-9			
Hexabromocyclododecane (HBCDD)	25637-99-4 3194-55-6			
Polybromobiphenyls (PBB)	59536-65-1			
Tetraboron disodium heptaoxide, hydrate	12267-73-1			
Tris-(2,3-dibromopropyl)- phosphate (TRIS)	126-72-7			
Tris - (aziridinyl) - phosphineoxide (TEPA)	545-55-1			
Tris-(2-chloroethyl)-phosphate (TCEP)	115-96-8			
Tris(1,3-dichloro-propyl)-phosphate (TDCP)	13674-87-8			
Trixylylphosphate (TXP)	25155-23-1			
Bis (2-ethylhexyl)-2,3,4,5-tetrabromophthalate (TBPH)	26040-51-7		< 1000 mg/kg	
Tris (1-chloro-2-propyl) phosphate (TCPP)	13674-84-5			
2-Ethylhexyl 2,3,4,5-Tetrabromobenzoate (TBB)	183658-27-7			
Antimony trioxide	1309-64-4	EN 16711-1:2015		
Boric Acid	10043-35-3 11113-50-1			
FORMALDEHYDE				
Formaldehyde	50-00-0	Textile: ISO 14184-1: 2011	< 75 mg/kg	Formaldehyde: used in anti- creasing, anti-shrinking, easy- ironing and water repellence finishing. Formaldehyde is a toxic chemical which can induce irritation to eyes and nose and even cause cancer. Classified in the EU as "carcinogenic from category 1B and mutagen category 2".

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
HEAVY METALS, EXTRACTABLE (APPLICABLE FOR TEXTILES AND TRIMS)				
Arsenic (As)	7440-38-2	EN 16711-2:2016 Extraction with acid perspiration according to ISO 105-E04:2013 *) no requirements for accessories made from metallic materials CHINA: GB/T 17593.2	≤ 1.0 mg/kg	Arsenic and its compounds can be used in preservatives, pesticides, and defoliants for cotton, synthetic fibers, paints, inks, trims, and plastics.
Chromium (Cr)	7440-47-3		≤ 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.
Chromium VI (Cr VI)	18540-29-9		< 0.5 mg/kg	Though typically associated with leather tanning, Chromium VI also may be used in the dyeing of wool (after the chroming process).
Cobalt (Co)	7440-48-4		≤ 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		≤ 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		≤ 1.0 mg/kg	Lead may be associated with plastics, paints, inks, pigments and surface coatings.
Nickel (Ni)	7440-02-0		≤ 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.
Antimony (Sb)	7440-36-0		< 30 mg/kg	Antimony can be found in or used as a catalyst in polymerization of polyester, flame retardants, fixing agents, pigments, and alloys.
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.
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.
HEAVY METALS, SOLUBLE (APPLICABLE FOR GARMENT COMPONENTS)*				
Antimony	7440-36-0	Extraction with simulated gastric solution acc. to EN 71-3:1995 *) Such as: Press studs, Eyelets, Velcro, Zippers, Wires, Decorative Labels, Hook and Eye, Plastic sleeving, Sequins, Beads, Pearls, Diamantes, Buttons	< 60 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 soluble are tested with a gastric solution. The test result indicates the release of heavy metals after ingestion when entering the stomach. The soluble heavy metals can also found in the EN 71-3 toy legislation.
Arsenic	7440-38-2		< 25 mg/kg	
Barium	7440-39-3		< 1000 mg/kg	
Cadmium	7440-43-9		< 75 mg/kg	
Chromium	7440-47-3		< 60 mg/kg	
Lead	7439-92-1		< 90 mg/kg	
Mercury	7439-97-6		< 60 mg/kg	
Selenium	7782-49-2		< 500 mg/kg	

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
HEAVY METALS, TOTAL CONTENT*				
Cadmium and its compounds	7440-43-9	Non metal: EN 1122:2001 Metal: Acid digestion	< 100 mg/kg	<p>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.</p> <p>Cadmium may be associated with pigments (especially in red, orange, yellow and green); as an alloy in metal; as a stabilizer for PVC; and in fertilizers, biocides and paints.</p> <p>Lead may be associated with metal parts, plastics, paints, inks, pigments and surface coatings.</p> <p>The result of the total content test indicates the quantity of metal that is a part of the plastic leather or textile material.</p>
Lead and its compounds	7439-92-1	Jewellery: EPA 3050B / 3051A / 3052 In metal products: CPSC- CH-E1001-08.3 In non metal products: CPSC-CH-E1002-08.3 Surface coating: CPSC-CH-E1003-09.1	< 90 mg/kg	
Lead (Release)		Non-coated: ASTM D5517(extraction with artificial saliva) Coated: EN 12472:2005 + A1:2009 and ASTM D5517(extraction with artificial saliva)	0.05 µg lead per cm ² per hour.	
* Applicable to all non textile accessories and components as well as for spun dyed fibres and articles containing pigments				
HEAVY METALS, RELEASABLE NICKEL				
Nickel	7440-02-0	EN 1811:2015 for non-coated item EN 12472:2009 for coated item	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.	<p>Nickel and its compounds can be used for plating alloys and improving corrosion-resistance and hardness of alloys.</p> <p>Nickel can cause extreme allergies and is released through skin contact.</p>
			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 EN 12472:2009	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	

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
ORGANOTIN COMPOUNDS				
Tributyltin (TBT)	56573-85-4	ISO/TS 16179: 2012	< 1.0 mg/kg each	<p>Organotins are a class of chemicals combining tin and organics such as butyl and phenyl groups.</p> <p>They are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (e.g., antibacterials to prevent unpleasant odours), catalysts in plastic, for glue production, and as heat stabilizers in plastics/rubber.</p> <p>In textiles and apparel, organotins are associated with plastics/rubber, inks, paints, metallic glitter, polyurethane products and heat transfer material.</p> <p>They can cause damage to liver, kidneys, blood forming processes and disruption of the enzyme system particularly harmful to children.</p>
Triphenyltin (TPHT)	668-34-8			
Monobutyltin (MBT)	78763-54-9			
Monooctyltin (MOT)	3091-25-6			
Monomethyltin (MMT)	23001-26-5			
Monophenyltin (MPHT)	2406-68-0			
Diphenyltin (DPHT)	1011-95-6			
Dibutyltin (DBT)	14488-53-0			
Diocetyl tin (DOT)	15231-44-4 3542-36-7			
Dimethyltin (DMT)	753-73-1			
Dipropyltin (DPT)	867-36-7			
Tricyclohexyltin (TCyHT)	3091-32-5			
Triocetyl tin (TOT)	2587-76-0			
Tripropyltin (TPT)	2279-76-7			
Trimethyltin (TMT)	1066-45-1			
Tetraethyltin (TeET)	597-64-8			
Tetrabutyltin (TebT)	1461-25-2			
OTHER CHEMICAL RESIDUES				
Quinoline	91-22-5	Extraction with Toluene followed by GC-MS	< 50 mg/kg	Quinolines are used in the manufacture of dyes.
PERFLUORINATED CHEMICALS AND HER COMPOUNDS				
Perfluorooctanesulfonates (PFOS) and related substances	Various 2795-39-3 1763-23-1	Textiles: CEN/TS 15968:2014	<p>Usage ban Detection limit: 1µg / m²</p>	<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 polytetra uoroethylene (PTFE).</p> <p>PFOA and PFOS is persistent, bioaccumulative, poisonous and possibly carcinogenic.</p>
Perfluorooctane acids (PFOA) and related substances	Various 335-67-1 3825-26-1 335-95-5 2395-00-8 335-66-0 376-27-2 3108-24-5			
Perfluorooctane sulfonamide (PFOSA)	754-91-6			
Perfluorooctane sulfonyl fluoride (PFOSF / POSF)	307-35-7			
N-Methyl perfluorooctane sulfonamide (N-Me-FOSA)	31506-32-8			
N-Ethyl perfluorooctane sulfonamide (N-Et-FOSA)	4151-50-2			
N-Methyl perfluorooctane sulfonamide ethanol (N-Me-FOSE)	24448-09-7			
N-Ethyl perfluorooctane sulfonamide ethanol (N-Et-FOSE)	1691-99-2			
Perfluoroheptanoic acid (PFHpA)	Various			
Perfluorononanoic acid (PFNA)	Various			
Perfluorodecanoic acid (PFDA)	Various			
Henicosfluoroundecanoic acid (PFUdA)	2058-94-8			
Tricosfluorododecanoic acid (PFDoA)	307-55-1			
Pentacosfluorotridecanoic acid (PFTrDA)	72629-94-8			
Heptacosfluorotetradecanoic acid (PFTeDA)	376-06-7			
			< 0.1 mg/kg	

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
PHthalATES				
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	ISO 14389:2014 CPSC-CH-C1001-09.3	< 1000 mg/kg each The sum of all Phthalates < 1000 mg/kg	<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. . 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			
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNU)	68515-42-4			
N-pentyl-isopentyl phthalate (NPIPP)	776297- 69-9			
Diisopentylphthalate (DIIPP)	605-50-5			
Dipentyl phthalate (DPP)	131-18-0			
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8			
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			
Dinonylphthalate (DNP)	84-76-4			
Di-iso-octylphthalate (DIOP)	27554-26-3			
Di-n-propylphthalate (DPRP)	131-16-8			
Di-cyclohexylphthalate (DCHP)	84-61-7			
Diethyl phthalate (DEP)	84-66-2			
Dimethyl phthalate (DMP)	131-11-3			
Di-n-hexyl phthalate (DHnP)	84-75-3			

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
POLYCYCLIC AROMATIC HYDROCARBONS (PAH'S)				
Benzo(a)pyrene	50-32-8	AfPS GS 2014:01 PAH	< 1 mg/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. PAHs are often found in the outsoles of footwear and in printing pastes for screen prints. PAHs can be present as impurities in Carbon Black. They also may be formed from thermal decomposition of recycled materials during reprocessing.</p> <p>Rubber or plastic components that come into direct and prolonged contact with the human skin or the oral cavity can cause severe allergic reactions.</p>
Benzo(a)anthracene	56-55-3			
Chrysene	218-01-9			
Benzo(b)fluoranthene	205-99-2			
Benzo(k)fluoranthene	207-08-9			
Dibenzo(a,h)anthracene	53-70-3			
Benzo(e)pyrene	192-97-2		The sum of 18 PAH's ≤ 10 mg/kg	
Benzo(j)fluoranthene	205-82-3			
Naphthalene	91-20-3			
Acenaphthylene	208-96-8			
Acenaphthene	83-32-9			
Fluorene	86-73-7			
Phenanthrene	85-01-8			
Anthracene	120-12-7			
Fluoranthene	206-44-0			
Pyrene	129-00-0			
Indeno[1,2,3-c,d]pyrene	193-39-5			
Benzo[g,h,i]perylene	191-24-2			
POLYMERS & POLYMER AUXILIARIES				
Polyvinylchloride	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
Bisphenol-A (BPA)	80-05-7	<p>Sample preparation: Extraction: 1g sample/20mL methanol, sonication for 60 minutes at 70°C</p> <p>Measurement: DIN EN ISO 18857-2 (mod)</p>	<p>< 1 mg/kg</p> <p>Banned from use as a monomer in the production of items that come into contact with food.</p>	<p>Used in the production of epoxy resins, polycarbonate plastics, flame retardants and PVC.</p> <p>Prohibited from use in food and drink containers, and items intended to come into contact with the oral cavity</p>
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.

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
SOLVENTS HALOGENATED - VOLATILE ORGANIC COMPOUNDS				
Chloroform	67-66-3	Pre-test: Odour test according to SNV 195 651, only pre-fail (grade 3) needs VOC Headspace testing	< 5 mg/kg	Halogenated solvents are a general class of chemicals that have a variety of different properties and therefore end uses. Some of the more common uses include chemical intermediate (including dyes and pesticides), industrial cleaning (processing equipment, boilers, etc), spot cleaning, textile processing (scouring solvent, carrier solvent for preparations and functional finishes), polyurethane foam blowing agents and can be used as in the manufacture of plastics and PVC.
Carbon Tetra Chloride	56-23-5			
Methylene chloride	56-23-5			
1,1,1-Trichloroethane	71-55-6		< 10 mg/kg	
Trichloroethane	79-00-5			
1,1,1,2-Tetrachloroethane	630-20-6			
1,1,2,2-Tetrachlorethan	79-34-5			
Pentachloroethane	76-01-7			
1,1-Dichloroethylene	75-35-4			
Trichloroethylene	79-01-6		< 1000 mg/kg	
Tetrachloroethylene	127-18-4			
1,2-Dichloroethane	107-06-2			
1,2,3-Trichloropropane	96-18-4			
SOLVENTS OTHER - VOLATILE ORGANIC COMPOUNDS				
Benzene	71-43-2	Pre-test: Odour test according to SNV 195 651, only pre-fail (grade3) needs VOC Headspace testing	< 1 mg/kg	VOC's are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial VOCs include thinners and dry cleaning solvents
Toluene	108-88-3		< 5 mg/kg	
Styrene	100-42-5		< 10 mg/kg	Styrene is a precursor for polymerization and may be present in various styrene- copolymers like plastic buttons.
Naphthalene	91-20-3		< 20 mg/kg	VOC's are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial VOCs include thinners and dry cleaning solvents
Ethylbenzene	100-41-4			
Xylene	1330-20-7			
Orthoxylene	95-47-6			
Metaxylene	108-38-3			
Paraxylene	106-42-3			
Cresols (ortho, meta, para)	95-48-7 106-44-5 108-39-4			
2-Ethoxyethanol	110-80-5			
Acetophenone	98-86-2		< 50 mg/kg	Potential breakdown products in EVA foam when using dicumyl peroxide as a cross- linking agent.
2-Phenyl-2-propanole	617-94-7			

SUBSTANCE	CAS NUMBER	TEST METHOD	HUNKEMÖLLER RESTRICTED LIMIT	RELEVANCE OF RESTRICTION
SOLVENTS OTHER - VOLATILE ORGANIC COMPOUNDS CONTINUED				
2-Methoxyethanol	109-86-4	Pre-test: Odour test according to SNV 195 651, only pre-fail (grade3) needs VOC Headspace testing	< 50 mg/kg	VOC's are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial VOCs include thinners and dry cleaning solvents
1,2-Dimethoxyethane (DME)	110-71-4			
2-Methoxyethyl acetate	110-49-6			
2-Methoxypropyl acetate	70657-70-4			
Triethylene glycol dimethyl ether (TEGDME)	112-49-2			
Cyclohexanone	108-94-1			
MEK (Methyl-Ethyl-Ketone)	78-93-3		< 100 mg/kg	
Formamide	75-12-7			
DMFa (N,N Dimethylformamide)	68-12-2		< 500 mg/kg	DMFa is a solvent used in plastics, rubber, & polyurethane (PU) coating. Water-based PU does not contain DMFa and is therefore preferable.
1-Methyl-2pyrrolidone (NMP)	872-50-4			
2-Ethoxyethyl acetate	111-15-9		< 1000 mg/kg	VOC's are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial VOCs include thinners and dry cleaning solvents
DMAC (N,N-dimethylacetamide)	127-19-5			
Bis-(2-methoxyethyl) ether	111-96-6			
OTHER ATTENTION POINTS				
pH value for textiles		ISO 3071:2006	4.0 – 7.5	pH is a measure of the acidity or basicity of a solution. A solution with pH is 7 is neutral. pH values that do not fall within the specified limits can cause skin irritation
Odour		SNV 195651:1968	No abnormal odour allowed. If odour rating < 3, VOC test to be performed	

REACH ANNEX: ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 15-01-2018

NUMBER OF SUBSTANCES ON THE CANDIDATE LIST: 181

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

Any producer or importer of Hunkemöller articles shall submit a notification to Hunkemöller 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.

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
1	Benz[a]anthracene	56-55-3, 1718-53-2	2018/01/15	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
2	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)
3	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)
4	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)
5	Chrysene	218-01-9 1719-03-5	2018/01/15	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)
6	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 there of]	-	2018/01/15	vPvB (Article 57e)
7	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)
8	Perfluorohexane-1-sulphonic acid and its salts	-	2017/07/07	vPvB (Article 57e)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
9	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)
10	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)
11	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)
12	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)
13	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)
14	1,3-propanesultone	1120-71-4	2015/12/15	Carcinogenic (Article 57a);
15	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	2015/12/15	vPvB (Article 57 e)
16	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	2015/12/15	vPvB (Article 57 e)
17	Nitrobenzene	98-95-3	2015/12/15	Toxic for reproduction (Article 57c)
18	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)
19	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)
20	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)
21	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)
22	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)
23	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)
24	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)
25	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)
26	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)
27	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	2014/12/17	PBT (Article 57 d); vPvB (Article 57 e)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
28	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)
29	Sodium peroxometaborate	.7632-04-4	2014/06/16	Toxic for reproduction (Article 57 c)
30	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	2014/06/16	Toxic for reproduction (Article 57 c)
31	Sodium perborate; perboric acid, sodium salt	-	2014/06/16	Toxic for reproduction (Article 57 c)
32	Trixylyl phosphate	25155-23-1	2013/12/16	Toxic for reproduction (Article 57 c);
33	Lead di(acetate)	301-04-2	2013/12/16	Toxic for reproduction (Article 57 c);
34	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	2013/12/16	Toxic for reproduction (Article 57 c);
35	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);
36	Cadmium sulphide	1306-23-6	2013/12/16	Carcinogenic (Article 57a);
37	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);
38	Dihexyl phthalate	84-75-3	2013/12/16	Toxic for reproduction (Article 57 c);
39	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	2013/06/20	Toxic for reproduction (Article 57 c);
40	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)
41	Pentadecafluorooctanoic acid (PFOA)	335-67-1	2013/06/20	Toxic for reproduction (Article 57 c);
42	Dipentyl phthalate (DPP)	131-18-0	2013/06/20	Toxic for reproduction (Article 57 c);
43	Cadmium	7440-43-9	2013/06/20	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)
44	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)
45	4,4'-methylenedi-o-toluidine	838-88-0	2012/12/19	Carcinogenic (Article 57a)
46	N-pentyl-isopentylphthalate	776297-69-9	2012/12/19	Toxic for reproduction (Article 57 c)
47	4-Aminoazobenzene	60-09-3	2012/12/19	Carcinogenic (Article 57a)
48	Orange lead (lead tetroxide)	1314-41-6	2012/12/19	Toxic for reproduction (Article 57 c)
49	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	2012/12/19	Toxic for reproduction (Article 57 c)
50	Dimethyl sulphate	77-78-1	2012/12/19	Carcinogenic (Article 57a)
51	Heptacosafuorotetradecanoic acid	376-06-7	2012/12/19	vPvB (Article 57 e)
52	Lead titanium zirconium oxide	12626-81-2	2012/12/19	Toxic for reproduction (Article 57 c)
53	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)
54	6-methoxy-m-toluidine (p-cresidine)	120-71-8	2012/12/19	Carcinogenic (Article 57a)
55	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	2012/12/19	Toxic for reproduction (Article 57 c)
56	1,2-Diethoxyethane	629-14-1	2012/12/19	Toxic for reproduction (Article 57 c)
57	Sulfurous acid, lead salt, dibasic	62229-08-7	2012/12/19	Toxic for reproduction (Article 57 c)
58	1-bromopropane (n-propyl bromide)	106-94-5	2012/12/19	Toxic for reproduction (Article 57 c)
59	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	2012/12/19	PBT (Article 57 d); vPvB (Article 57 e)
60	Biphenyl-4-ylamine	92-67-1	2012/12/19	Carcinogenic (Article 57a)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
61	Pentalead tetraoxide sulphate	12065-90-6	2012/12/19	Toxic for reproduction (Article 57 c)
62	Silicic acid, lead salt	11120-22-2	2012/12/19	Toxic for reproduction (Article 57 c)
63	o-Toluidine	95-53-4	2012/12/19	Carcinogenic (Article 57a)
64	Acetic acid, lead salt, basic	51404-69-4	2012/12/19	Toxic for reproduction (Article 57 c)
65	Dioxobis(stearato)trilead	12578-12-0	2012/12/19	Toxic for reproduction (Article 57 c)
66	Lead bis(tetrafluoroborate)	13814-96-5	2012/12/19	Toxic for reproduction (Article 57 c)
67	Lead dinitrate	10099-74-8	2012/12/19	Toxic for reproduction (Article 57 c)
68	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)
69	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)
70	N-methylacetamide	79-16-3	2012/12/19	Toxic for reproduction (Article 57 c)
71	Pyrochlore, antimony lead yellow	8012-00-8	2012/12/19	Toxic for reproduction (Article 57 c)
72	Lead monoxide (lead oxide)	1317-36-8	2012/12/19	Toxic for reproduction (Article 57 c)
73	Tetralead trioxide sulphate	12202-17-4	2012/12/19	Toxic for reproduction (Article 57 c)
74	Trilead bis(carbonate)dihydroxide	1319-46-6	2012/12/19	Toxic for reproduction (Article 57 c)
75	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)
76	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	2012/12/19	Toxic for reproduction (Article 57 c)
77	N,N-dimethylformamide	68-12-2	2012/12/19	Toxic for reproduction (Article 57 c)
78	Tetraethyllead	78-00-2	2012/12/19	Toxic for reproduction (Article 57 c)
79	Methyloxirane (Propylene oxide)	75-56-9	2012/12/19	Carcinogenic (Article 57a); Mutagenic (Article 57b)
80	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)
81	Fatty acids, C16-18, lead salts	91031-62-8	2012/12/19	Toxic for reproduction (Article 57 c)
82	Trilead dioxide phosphonate	12141-20-7	2012/12/19	Toxic for reproduction (Article 57 c)
83	o-aminoazotoluene	97-56-3	2012/12/19	Carcinogenic (Article 57a)
84	[Phthalato(2-)]dioxotrilead	69011-06-9	2012/12/19	Toxic for reproduction (Article 57 c)
85	Tricosafuorododecanoic acid	307-55-1	2012/12/19	vPvB (Article 57 e)
86	Lead oxide sulfate	12036-76-9	2012/12/19	Toxic for reproduction (Article 57 c)
87	Methoxyacetic acid	625-45-6	2012/12/19	Toxic for reproduction (Article 57 c)
88	Diisopentylphthalate	605-50-5	2012/12/19	Toxic for reproduction (Article 57 c)
89	Lead cyanamidate	20837-86-9	2012/12/19	Toxic for reproduction (Article 57 c)
90	4,4'-oxydianiline and its salts	101-80-4	2012/12/19	Carcinogenic (Article 57a); Mutagenic (Article 57b)
91	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	2012/12/19	Carcinogenic (Article 57a)
92	Henicosafuoroundecanoic acid	2058-94-8	2012/12/19	vPvB (Article 57 e)
93	Furan	110-00-9	2012/12/19	Carcinogenic (Article 57a)
94	Pentacosafuorotridecanoic acid	72629-94-8	2012/12/19	vPvB (Article 57 e)
95	Diethyl sulphate	64-67-5	2012/12/19	Carcinogenic (Article 57a); Mutagenic (Article 57b)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
96	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)
97	Dibutyltin dichloride (DBTC)	683-18-1	2012/12/19	Toxic for reproduction (Article 57 c)
98	Lead titanium trioxide	12060-00-3	2012/12/19	Toxic for reproduction (Article 57 c)
99	Formamide	75-12-7	2012/06/18	Toxic for reproduction (Article 57 c)
100	[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)
101	Diboron trioxide	1303-86-2	2012/06/18	Toxic for reproduction (Article 57 c)
102	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	2012/06/18	Carcinogenic (Article 57a)
103	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	2012/06/18	Toxic for reproduction (Article 57 c)
104	Lead(II) bis(methanesulfonate)	17570-76-2	2012/06/18	Toxic for reproduction (Article 57 c)
105	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)
106	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)
107	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)
108	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)
109	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	2012/06/18	Carcinogenic (Article 57a)
110	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)
111	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	2012/06/18	Toxic for reproduction (Article 57 c)
112	Lead styphnate	15245-44-0	2011/12/19	Toxic for reproduction (article 57 c)
113	Calcium arsenate	7778-44-1	2011/12/19	Carcinogenic (article 57 a)
114	Bis(2-methoxyethyl) ether	111-96-6	2011/12/19	Toxic for reproduction (article 57 c)
115	Phenolphthalein	77-09-8	2011/12/19	Carcinogenic (article 57 a)
116	Arsenic acid	7778-39-4	2011/12/19	Carcinogenic (article 57 a)
117	2-Methoxyaniline; o-Anisidine	90-04-0	2011/12/19	Carcinogenic (article 57 a)
118	Potassium hydroxyoctaoxidizincatedichromate	11103-86-9	2011/12/19	Carcinogenic (article 57 a)
119	Bis(2-methoxyethyl) phthalate	117-82-8	2011/12/19	Toxic for reproduction (article 57 c)
120	4-(1,1,1,3,3-tetramethylbutyl)phenol	140-66-9	2011/12/19	Equivalent level of concern having probable serious effects to the environment (article 57 f)
121	Dichromium tris(chromate)	24613-89-6	2011/12/19	Carcinogenic (article 57 a)
122	Pentazinc chromate octahydroxide	49663-84-5	2011/12/19	Carcinogenic (article 57 a)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
123	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)
124	Lead dipicrate	6477-64-1	2011/12/19	Toxic for reproduction (article 57 c)
125	N,N-dimethylacetamide	127-19-5	2011/12/19	Toxic for reproduction (article 57 c)
126	1,2-dichloroethane	107-06-2	2011/12/19	Carcinogenic (article 57 a)
127	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	2011/12/19	Carcinogenic (article 57 a)
128	Trilead diarsenate	3687-31-8	2011/12/19	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
129	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	2011/12/19	Carcinogenic (article 57 a)
130	Lead diazide, Lead azide	13424-46-9	2011/12/19	Toxic for reproduction (article 57 c),
131	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)
132	Cobalt dichloride	7646-79-9	2011/06/20 - 2008/10/28	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
133	1-Methyl-2-pyrrolidone	872-50-4	2011/06/20	Toxic for reproduction (article 57c)
134	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	2011/06/20	Toxic for reproduction (article 57c)
135	Hydrazine	302-01-2, 7803-57-8	2011/06/20	Carcinogenic (article 57a)
136	1,2,3-Trichloropropane	96-18-4	2011/06/20	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
137	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	2011/06/20	Toxic for reproduction (article 57c)
138	Strontium chromate	7789-06-2	2011/06/20	Carcinogenic (article 57a)
139	2-Ethoxyethyl acetate	111-15-9	2011/06/20	Toxic for reproduction (article 57c)
140	2-Ethoxyethanol	110-80-5	2010/12/15	Toxic for reproduction (article 57c)
141	Cobalt(II) diacetate	71-48-7	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
142	Cobalt(II) carbonate	513-79-1	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
143	Cobalt(II) sulphate	10124-43-3	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
144	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)
145	Cobalt(II) dinitrate	10141-05-6	2010/12/15	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
146	Chromium trioxide	1333-82-0	2010/12/15	Carcinogenic and mutagenic (articles 57 a and 57 b)
147	2-Methoxyethanol	109-86-4	2010/12/15	Toxic for reproduction (article 57c)
148	Trichloroethylene	79-01-6	2010/06/18	Carcinogenic (article 57 a)
149	Sodium chromate	7775-11-3	2010/06/18	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)

No.	Substance Name	Cas Number	Date of inclusion	Reason for inclusion
150	Boric acid	10043-35-3, 11113-50-1	2010/06/18	Toxic for reproduction (article 57 c)
151	Potassium chromate	7789-00-6	2010/06/18	Carcinogenic and mutagenic (articles 57 a and 57 b).
152	Tetraboron disodium heptaoxide, hydrate	12267-73-1	2010/06/18	Toxic for reproduction (article 57 c)
153	Potassium dichromate	7778-50-9	2010/06/18	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
154	Disodium tetraborate, anhydrous	1303-96-4, 1330-43-4, 12179-04-3	2010/06/18	Toxic for reproduction (article 57 c)
155	Ammonium dichromate	7789-09-5	2010/06/18	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)
156	Acrylamide	79-06-1	2010/03/30	Carcinogenic and mutagenic (articles 57 a and 57 b)
157	2,4-Dinitrotoluene	121-14-2	2010/01/13	Carcinogenic (article 57a)
158	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)
159	Anthracene oil, anthracene-low	90640-82-7	2010/01/13	Carcinogenic2, mutagenic3, PBT and vPvB (articles 57a, 57b, 57d and 57e)
160	Pitch, coal tar, high temp.	65996-93-2	2010/01/13	Carcinogenic, PBT and vPvB (articles 57a, 57d and 57e)
161	Anthracene oil, anthracene paste	90640-81-6	2010/01/13	Carcinogenic2, mutagenic3, PBT and vPvB (articles 57a, 57b, 57d and 57e)
162	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)
163	Lead chromate	7758-97-6	2010/01/13	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
164	Anthracene oil	90640-80-5	2010/01/13	Carcinogenic1, PBT and vPvB (articles 57a, 57d and 57e)
165	Diisobutyl phthalate	84-69-5	2010/01/13	Toxic for reproduction (article 57c)
166	Tris(2-chloroethyl)phosphate	115-96-8	2010/01/13	Toxic for reproduction (article 57c)
167	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	2010/01/13	Carcinogenic2, mutagenic3, PBT and vPvB (articles 57a, 57b, 57d and 57e)
168	Anthracene oil, anthracene paste, distn. lights	91995-17-4	2010/01/13	Carcinogenic2, mutagenic3, PBT and vPvB (articles 57a, 57b, 57d and 57e)
169	4,4'- Diaminodiphenylmethane (MDA)	101-77-9	2008/10/28	Carcinogenic (article 57a)
170	Triethyl arsenate	15606-95-8	2008/10/28	Carcinogenic (article 57a)
171	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	2008/10/28	vPvB (article 57e)
172	Benzyl butyl phthalate (BBP)	85-68-7	2008/10/28	Toxic for reproduction (article 57c)
173	Sodium dichromate	7789-12-0, 10588-01-9	2008/10/28	Carcinogenic, mutagenic and toxic for reproduction (articles 57a, 57b and 57c)
174	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	2008/10/28	PBT and vPvB (articles 57 d and 57 e)
175	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)
176	Anthracene	120-12-7	2008/10/28	PBT (article 57d)
177	Dibutyl phthalate (DBP)	84-74-2	2008/10/28	Toxic for reproduction (article 57c)
178	Lead hydrogen arsenate	7784-40-9	2008/10/28	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)
179	Diarsenic trioxide	1327-53-3	2008/10/28	Carcinogenic (article 57a)
180	Diarsenic pentaoxide	1303-28-2	2008/10/28	Carcinogenic (article 57a)
181	Bis(tributyltin)oxide (TBTO)	56-35-9	2008/10/28	PBT (article 57d)

CHEMICAL GROUP (RSL)	CHANGE LOG MAJOR CHANGES FROM RSL 1.0 TO RSL 2.0
ALKYLPHENOLS (AP) AND ALKYLPHENOL ETHOXYLATES (APEO)	Updated: testmethod
AZO DYES	Updated: testmethod
BIOCIDES & PESTICIDES	No changes
CHLOROBENZENES AND CHLOROTOLUENES	Changed: specified the Benzenes and Toluenes Added: new Benzenes and Toluenes with their cas.no.
CHLORINATED PARAFFINS	No changes
CHLOROPHENOLS	Changed: specified Tetrachlorophenols and Trichlorophenols Deleted: Dichlorophenols and Monochlorophenols
DISPERSE DYES WHICH ARE CLASSIFIED TO BE ALLERGENIC	Changed: the limit from 75 mg/kg to 50 mg/kg
DYES WHICH ARE CLASSIFIED TO BE CARCINOGENIC AND OTHER HARMFULL DYES	Changed: the limit from 75 mg/kg to 50 mg/kg Changed: some dyes from carcinogenic dyes to new group " dyes which are additionally restricted" Added: 5 dyes
DYES WHICH ARE ADDITIONALLY RESTRICTED	New group added
FLAME RETARDENTS	Added: new flameretardents Updated: the testmethod
FORMALDEHYDE	Updated: testmethod
HEAVY METALS EXTRACTABLE	Updated: testmethod Added: Chromium VI
HEAVY METALS SOLUBLE	No changes
HEAVY METALS TOTAL CONTENT	Updated: testmethods Added: Lead release
HEAVY METALS RELEASABLE NICKEL	No changes
ORGANOTIN COMPOUNDS	Added: Dipropyltin (DPT) and Tetraethyltin (TeET)

CHEMICAL GROUP (RSL)	CHANGE LOG MAJOR CHANGES FROM RSL 1.0 TO RSL 2.0
OTHER CHEMICAL RESIDUES	Added: new group
PERFLUORINATED CHEMICALS AND HER COMPOUNDS	Changed: specified the Perfluorinated chemicals and compounds Updated: the testmethod
PHTHALATES	Added: USA testmethod
POLYCYCLIC AROMATIC HYDROCARBONS (PAH'S)	Updated: the the sum of 10 PAHs into 18
PVC	Changed: the name of the group into POLYMERS & POLYMER AUXILIARIES Added: Bisphenol-A and Vinyl Chloride
SOLVENTS HALOGENATED - VOLATILE ORGANIC COMPOUNDS	Updated: limits and testmethod
SOLVENTS OTHER - VOLATILE ORGANIC COMPOUNDS	Updated: the complete group with new limits
OTHER ATTENTION POINTS	Updated: testmethod
REACH CANDIDATE LIST	Updated: from 169 substances to 181 substances
RISK MATRIX	Updated: new lay-out matrix