

G-STAR RAW
RESTRICTED
SUBSTANCES LIST (RSL)

VERSION 1.3 - NOVEMBER 2014

INTRODUCTION

G-Star is committed to producing high quality and ethically manufactured products and intends to only do business with suppliers that share our commitment to make a strong product in a socially and environmentally conscious way. We outlined the minimum Social and Environmental, Health & Safety (EHS) standards under which our products should be manufactured in the G-Star Supplier Code of Conduct. The Code of Conduct refers to the G-Star Restricted Substances List (RSL) as the basis for monitoring the use of chemicals in G-Star products.

The RSL applies to all products of G-Star Raw C.V. and/or its subsidiaries (hereinafter 'G-Star'), which includes ready-made garments, accessories and packing materials. The RSL also applies to all materials, parts, trims and other goods supplied for use in producing G-Star products.

Zero Discharge of Hazardous Chemicals (ZDHC) by 2020

Next to preventing the use of hazardous chemicals in our products, G-Star is also committed to eliminating industrial releases of hazardous chemicals into the environment. We therefore set the target to reach zero discharge of hazardous chemicals from all our products and production processes by 2020.

Purpose of the RSL

Our suppliers are critical partners in meeting our commitments regarding consumer safety, working conditions and environmental protection. The purpose of the RSL for garment and fabric manufacturing is to inform our suppliers on all chemicals that are banned or restricted in G-Star finished products. Our suppliers are expected to study this document carefully and communicate the information to relevant internal teams, sub-contractors and others involved in the production of G-Star products.

Each supplier is required to declare and ensure that the materials, parts, trims, metal parts and other goods supplied or otherwise delivered for G-Star products comply with the limitations described or referred to in the RSL and any additional requirements imposed by law or local authorities. The supplier is also responsible for seeking guidance from G-Star in situations of doubt about product compliance with the RSL for garment and fabric manufacturing.

In addition to strict compliance with the RSL, it is necessary that the supplier collects and keeps on file all safety data sheets concerning the chemicals used in G-Star products at all times. This concerns in particular, but is not restricted to, the processes of production and finishing. For transparency and safety reasons,

the supplier should display the safety and security sheets at the premises where G-Star products are being manufactured and/ or stored, and should make them available to G-Star upon request.

Compliance with this Restricted Substance List is a mandatory condition for each and every order placed by G-Star.

G-Star Raw C.V. November 2014

The G-Star Restricted Substance List a mandatory condition for each and every order placed by G-Star.
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TABLE OF CONTENTS

Subject	Page
Introduction	2
Introduction	2
Table Of Contents	3
Methodology	5
Restricted Substance List 1.3	6
Alkylphenols & Alkylphenoethoxylates	6
Allergenic Disperse Dyes	7
AZO Dyes Which By Reductive Cleavage May Release One Or More Aromatic Arylamines	8
Biocides	9
Carcinogenic Dyes	9
Chlorinated Solvents	10
Chlorobenzenes And Chlorotoluenes	11
Chlorinated Paraffins	11
Chlorophenols	12
Dyes With Environmental Problems	12
Flame Retardents	13
Formaldehyde	14
Heavy Metals, Extractable	14
Heavy Metals, Total Content	15
Heavy Metals, Releasable Nickel	15
Organotin Compounds	16

Subject	Page
Perfluorinated Chemicals	16
Phthalates	17
Polychlorinated Biphenyls (Pcb'S) And Polychlorinated Terphenyls (Pct's)	18
Polycyclic aromatic hydrocarbons (PAH's)	18
Polymers & Polymer Auxiliaries	19
Other Solvents	19
Other Attention Points	19
Appendix Restricted Substances List 1.3	20
Asbestos	21
Pesticides	22
Pesticides Continued	23-24
Dioxins And Furans	25
Dioxins And Furans Continued	26
Fluorinated Greenhouse Gases	26
Fluorinated Greenhouse Gases Continued	27
Reach Regulation 1907/2006	28
Reach Candidate List	29
Reach Authorisation List	37

TABLE OF CONTENTS

Subject	Page
Flowcharts	39
Fabrics & Yarns Of Natural Origin	40
Fabrics & Yarns Of Synthetic Origin And Blends	41
Leather, Fake Leather & Plastic Products	42
Trimmings	43
Prints	44
Explanation of Substances	45
Explanation On The Action Of Substances	46
Explanation Of Abbreviations	48
Disclaimer	49

METHODOLOGY


This Restricted Substances List (RSL) is intended to inform on Worldwide Regulations restricting or banning the use of chemicals in textile, footwear and apparel products including packaging materials and accessories attached to garments.

In addition National Laws in a global context for example originating from Canada, China, Egypt, Japan, Korea, Switzerland, Taiwan, Vietnam and the USA appear in the RSL. The RSL is divided in two categories:



Legally Restricted Substances

This list mentions the strictest legal requirements both inside and outside the EU but uses as a starting point European Union Regulations, European Union Directives and European Union Decisions. In case National Laws and EU Rules are similar in their meaning, only the EU Rules are presented. It may well be that in some EU countries no legislation exists whereas in other EU countries legal requirements apply.



Restricted Substances under investigation

Some substances appearing under the red heading of Legally Restricted Substances are marked orange because they may belong to the red group but their action is still under investigation with no specific legal basis yet. They may also appear on the list based on voluntary restriction by a number of international retail companies and of recommendations by NGO's.

G-Star is a system partner of bluesign technologies ag. This is an independent standard that guarantees that products are free of hazardous chemicals. We are committed to implement their bluesign® standard in our supply chain to come to a healthy, safe and environmentally friendly production process. By joining bluesign technologies ag we encourage our suppliers in our entire textile production chain, from raw materials to textile manufacturers, to also become a system partner of bluesign technologies ag.

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Alkylphenols (Ap) And Alkylphenol Ethoxylates (Apeo)							
Nonylphenols (NP)	25154-52-3 104-40-5 11066-49-2 84852-15-3	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 46	Zero Discharge	Extraction, GC/LC-MS	Usage ban 2013 onwards APEO/NPEO traces < 100 mg/kg* *Sources of contamination has to be identified and phased out. APEO/NPEO trace <500mg/kg for recycled material	AP/NP < 3 mg/kg APEO/NPEO < 30 mg/kg	APEOs are widely used in detergents, scouring agents, wetting agents, softeners, leather finishing, de-gumming for silk, Polyester padding and many other uses. APEO's can easily degrade to AP's which are considered to be toxic, persistent to the environment and bioaccumulative.*
Octylphenols (OP)	27193-28-8 140-66-9 1806-26-4						
Nonylphenoethoxylates (NPEO)	9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0	Suspect to cause health effects, still under research.		Extraction, GC/LC-MS			
Octylphenoethoxylates (OPEO)	9063-89-2 9036-19-5 38987-90-6 9002-93-1"						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Allergenic Disperse Dyes							
C.I. Disperse Blue 1	2475-45-8	GERMANY: § 30 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch. SOUTH KOREA: Prohibited in adults underwear.					
C.I. Disperse Yellow 3	2832-40-8						
C.I. Disperse Blue 106	12223-01-7						
C.I. Disperse Blue 124	61951-51-7						
C.I. Disperse Blue 35	12222-75-2						
C.I. Disperse Orange 3	730-40-5						
C.I. Disperse Orange 37/59/76	12223-33-5 / 13301-61-6						
C.I. Disperse Red 1	2872-52-8			DIN 54231, § 64 LFGB - 82.02-10-2007	Usage ban	< 1 mg/l (= appr. 15 mg/kg) for every single listed substance	Disperse dyes 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.
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 102	12222-97-8						
C.I. Disperse Brown 1	23355-64-8						
C.I. Disperse Orange 1	2581-69-3						
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 9	6373-73-5						
C.I. Disperse Yellow 39	12236-29-2						
C.I. Disperse Yellow 49	54824-37-2						
C.I. Disperse Orange 149	85136-74-9						
C.I. Disperse Yellow 23	6250-23-3						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
AZO Dyes Which By Reductive Cleavage May Release One Or More Arylamines							
Biphenyl-4-ylamin, 4-aminobiphenyl xenylamine	92-67-1	<p>EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 43 + appendix 8</p> <p>CHINA: China National General Safety Code for Textile Products GB 18401-2010 Leather and Fur – Limit of Harmful Matter GB 20400-2006.</p> <p>VIETNAM: Vietnam Circular No. 32/2009-TT-BCT Ministry of Industry and Trade.</p> <p>KOREA: KATS Notification No. 2010-677</p> <p>EGYPT: EGYPT: Regulation ES 7266- 4</p> <p>Also restricted in Switzerland, Norway, Indonesia and Taiwan</p>	Zero Discharge		< 20 mg/kg	< 10 mg/kg	AZO Dyes may release one or more arylamines. 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, 4-amino-2',3-dimethylazobenzene 4-o-tolylazo-otoluidine	97-56-3						
5-nitro-o-toluidine	99-55-8						
4-chloroaniline	106-47-8						
4-methoxy-m-phenylenediamine	615-05-4						
4,4'-methylenedianiline 4,4'-diaminodiphenylmethane	101-77-9						
4,4'-diaminodiphenylmethane	91-94-1						
3,3'-dichlorobenzidine 3,3'-dichlorobiphenyl-4,4'-ylenediamine	91-94-1						
3,3-dimethoxybenzidine o-dianisidine	119-90-4						
3,3-dimethylbenzidine, 4,4'-bi-o-toluidine	119-93-7						
4,4'-methylenedi-o-toluidine	838-88-0						
6-methoxy-m-toluidine p-cresidine	120-71-8						
4,4'-methylene-bis-(2-chloro-aniline) 2,2'-dichloro-4,4'-ethylenedianiline	101-14-4						
4,4'-oxydianiline	101-80-4						
4,4'-thiodianiline	139-65-1						
o-toluidine, 2-aminotoluene	95-53-4						
4-methyl-m-phenylenediamine	95-80-7						
2,4,5-trimethylaniline	137-17-7						
o-anisidine (2-methoxyanilin)	90-04-0						
4-amino azobenzene	60-09-3						
2,4-xylydine	95-68-1						
2,6-xylydine	87-62-7						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Biocides							
Dimethylfumarate	624-49-7	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No.61		HPLC	Usage ban	< 0.1 mg/kg	Dimethyl fumarate (DMFu) is a fungicide used to prevent mould in leather and textiles. DMFu can cause acute dermatitis, eczema, and general fatigue, to the persons who have been in contact with this substance.
Triclosan	3380-34-5			Extraction, GC-MS	Usage ban	< 1 mg/kg	These chemicals have similar properties as Dimethylfumarate.
o-Phenylphenol (OPP)	90-43-7	Use voluntarily restricted by an increasing number of companies		Textiles: KOH screening method § 64 LFGB B 82.02-8 Leather: EN ISO 17070	Textiles: KOH screening method § 64 LFGB B 82.02-8 Leather: EN ISO 17070	< 0.5 mg/kg	o-Phenylphenol can be used for its preservative properties in leather or as a carrier in dyeing processes. Can irritate the skin and cause in contact with eyes severe irritation and burns with possible eye damage.
Carcinogenic Dyes							
C.I. Acid Red 26	3761-53-3	COMMISSION DECISION 2002 / 371 Ecological criteria for the Community eco-label to textile products EGYPT: Regulation ES 7266-4		DIN 54231, § 64 LFGB - 82.02-10-2007	Usage ban	< 1 mg/l (= appr. 15 mg/kg) for every single listed substance	According to the Commission Decision these dyestuffs are not allowed in products bearing the EU Eco label because they are considered to be carcinogenic.
C.I. Basic Red 9	569-61-9						
C.I. Direct Black 38	1937-37-7						
C.I. Direct Blue 6	2602-46-2						
C.I. Direct Red 28	573-58-0						
C.I. Disperse Blue 1	2475-45-8						
C.I. Disperse Yellow 3	2832-40-8						
C.I. Basic Violet 14	632-99-5						
C.I. Disperse orange 11	82-28-0						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Chlorinated Solvents							
1,2,3-Trichloropropane	96-18-4	EUROPE: 1907/2006 REACH ANNEX XVII NO.28 SVHC for REACH Candidate List.	Zero Discharge	Head space GC-MS	Usage ban	< 5 mg/kg	Solvents are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial solvents include thinners and dry cleaning solvents.
1,2-Dichloroethane	107-06-2					< 1 mg/kg	
Pentachloroethane	76-01-7	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.30 ChemicalienverbotsVO Abschnitt 16 Japan				< 1 mg/kg	
Chloroform	67-66-3	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.3 ChemicalienverbotsVO Abschnitt 16 Japan				< 5 mg/kg	
1,1,2-Trichloroethane	79-00-5	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.34 ChemicalienverbotsVO Abschnitt 16 Japan				< 1 mg/kg	
1,1,1,2-Tetrachloroethane	630-20-6	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.36 ChemicalienverbotsVO Abschnitt 16 Japan				< 1 mg/kg	
1,1-Dichloroethylene	75-35-4	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.38 ChemicalienverbotsVO Abschnitt 16 Japan				< 10 mg/kg	
1,1,1-Trichloroethane	71-55-6	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.39 ChemicalienverbotsVO Abschnitt 16 Japan				< 1 mg/kg	
Carbon Tetra Chloride	56-23-5	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.33 ChemicalienverbotsVO Abschnitt 16 Japan				< 1 mg/kg	
Tetrachloroethylene	127-18-4	Japan Law for the Control of Household products Containing Harmful Substances.				< 10 mg/kg	
Trichloroethylene	79-01-6	EUROPE: Regulation 1907/2006 REACH ANNEX XVII NO.155				< 5 mg/kg	

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Chlorobenzenes and Chlorotoluenes							
Pentachlorobenzenes	608-93-5	EUROPE: Regulation (EU) No. 757/210 amending POP Regulation 850/2004 Switzerland	Zero Discharge	DIN 54232-2010 GC-MS analysis	< 1.0 mg/kg (total)	< 0.1 mg/kg	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. Most of these carriers are toxic to humans and aquatic organisms, and some are even carcinogenic.
Hexachlorobenzene	118-74-1	EUROPE: Regulation (EU) No. 757/210 amending POP Regulation 850/2004 Canada, Finland and Switzerland					
Trichlorobenzenes *	87-61-6, 120-82-1, 108-70-3	SWITZERLAND: ORRChem textiles and leather goods Oeko-tex 100 standard					
Tetrachlorobenzenes	17700-09-3	Oeko-tex 100 standard					
Dichlorobenzenes *	95-50-1, 541-73-1, 106-47-7						
Chlorotoluenes	95-49-8						
Dichlorotoluenes *	95-73-8, 118-69-4, 95-75-0						
Trichlorotoluenes *	98-07-7, 2077-46-5, 6639-30-1						
Tetrachlorotoluenes *	5216-25-1, 81-19-6, 134-25-8						
Pentachlorotoluenes *	877-11-2, 13014-24-9						
* For some chlorinated benzenes and toluenes several CAS Numbers are applicable.							
Chlorinated Paraffins							
Short-chain chlorinated paraffins (SCCP)	85535-84-8	POP REGULATION 850/2004 ANNEX 1; Canada and Korea	Zero Discharge	EN ISO 18219 (modified)	< 100 mg/kg	< 5 mg/kg	SCCP's: used as flame retardants, in plasticizers, paints and adhesives and for fat liquoring of leather. SCCP's may cause long-term adverse effects in the aquatic environment.
Medium-chain chlorinated paraffins (MCCP)	85535-85-9			EN ISO 18219 (modified)	< 100 mg/kg	< 5 mg/kg	MCCP's: used as secondary plasticiser in PVC, can also be used in metal working fluids, paints, varnishes, adhesives/sealants, flame retardants, leather fat liquors, carbonless copy paper.

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Chlorophenols							
Pentachlorophenol (PCP)	87-86-5	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 22 SPAIN: UNE 59950 (footwear)	Zero Discharge	Textiles and leather : 1 – Extraction and sample preparation according to method § LMBG B 82.02-08, dated 06/2001 2 – Determination according to method § 35 LMBG B 82.02-08, dated 06/2001 with GC-MS (or with GC-ECD). Printed polyester : 1 – Extraction with ASE or alkaline extraction (KOH) 2 – Sample preparation according to method § 35 LMBG B 82.02-08, dated 06/2001 3 – Determination according to method § 35 LMBG B 82.02-08, dated 06/2001 with GC-MS (or with GC-ECD).	Textiles: PCP + TeCP < 0.5 mg/kg Textile in footwear: PCP + TeCP < 0.05 mg/kg Leather in footwear: PCP + TeCP < 5 mg/kg	< 0.05 mg/kg	PCP and TeCP's are polychlorinated compounds used to preserve wood, leather, and textiles. PCP and TeCP's are irritants to the skin, eyes and mouth and can cause harmful effects to the liver, kidneys, blood and lungs and are probable human carcinogens.
2,3,5,6 - Tetrachlorophenol (TeCP)	935-95-5						
2,3,4,6 - Tetrachlorophenol (TeCP)	58902						
2,3,4,5 - Tetrachlorophenol (TeCP)	4901-59-3	SPAIN: UNE 59950 (footwear)					
Dyes With Environmental Problems							
Navy blue 018112	118685-33-9	EUROPE: REACH Regulation 1907/2006 ANNEX XVII No. 43 point 3/ appendix 9 Norway and Switzerland EGYPT: Regulation ES 7266-4/2011 (in textiles)		GC-MS or LC-MS	Usage ban	"< 1 mg/l (= appr. 20 mg/kg) for every single listed substance ≥= 0.1% w/w information duty" n.d.	Navy blue 018112 has a high aquatic toxicity and is harmful to the environment. Shall not be placed on the market or used for colouring textiles and leather articles.

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Flame Retardents							
Tris-(2,3-dibromopropyl)- phosphate (TRIS)	126-72-7	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No.4, No.7, No.8	Zero Discharge	GC-MS or LC-MS	Usage ban	< 5 mg/kg	These types of flame retardents 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.
Tris - (aziridiny) - phosphineoxide (TEPA)	5455-55-1					< 5 mg/kg	
Polybromobiphenyls (PBB)	59536-65-1					< 5 mg/kg	
Octabromodiphenylether (OctaBDE)	32536-52-0	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No.45 Switzerland, Egypt, Japan, South Korea and USA				< 5 mg/kg"	
Heptabromodiphenyl ether	"446255-22-7	< 5 mg/kg					
207122-16-5"		< 5 mg/kg					
Hexabromobiphenyl	36355-0-18	EUROPE: Regulation (EU) No. 757/2010 amending POP Regulation 850/2004 Switzerland, South Korea, USA				< 5 mg/kg	
Hexabromodiphenyl ether	"68631-49-2					< 5 mg/kg	
207122-15-4"						< 5 mg/kg"	
Pentabromodiphenyl ether (PentaBDE)	32534-81-9					< 5 mg/kg	
Tetrabromodiphenyl ether	5436-43-1	< 5 mg/kg"					
Tris-(2-chloroethyl)-phosphate (TCEP)	115-96-8	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No.30				< 5 mg/kg	
Bis(2,3-dibromopropyl) phosphate (BBP)	5412-25-9	JAPAN: Japanese Law no. 112				< 1 mg/kg	
Bis(2,3-dibromopropylether) of tetrabromobisphenol (BDBPT)	21850-44-2					< 5 mg/kg	
Tris(1,3-dichloro-2-propyl)phosphate (TDCCP)	13674-87-8	VERMONT (USA): S81 (Effective date January 1, 2014				< 5 mg/kg	
Hexabromocyclododecane (HBCDD)	25637-99-4	EUROPE: Regulation 1907/2006 REACH ANNEX XIV No.3	< 5 mg/kg				
Decabromodiphenyl Ether (DecaBDE)	1163-19-5	EUROPE: Regulation 1907/2006 SVHC for REACH Candidate List.	< 5 mg/kg"				

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Formaldehyde							
Formaldehyde	50-00-0	CHINA; China National General Safety Code for Textile Products GB 18401:2010		ISO 14184-1-2011 (Textiles) ISO 17226-1-2008 (Leather)	A: worn next to skin: < 75 mg/kg B: indirect skin contact: < 300 mg/kg	< 5 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.
		JAPAN: Japanese Law no. 112					
		KOREA: Self-Regulatory Safety Confirmation Act and Safety Quality Mark Act.					
		VIETNAM: Circular No. 32/2009-TT-BCT Ministry of Industry and Trade.					
		SPAIN: UNE 59950 (footwear)			Footwear: Leather: < 150 mg/kg Textiles: < 75 mg/kg		
Heavy Metals, Extractable							
Antimony (Sb)	7440-36-0	GERMANY: § 30 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch in accordance with EUROPE: Directive 2009/48/EC on Safety of Toys	Zero Discharge	Extractable Content: Extraction with acid perspiration according to EN ISO 105-E04-2009	< 30 mg/kg	< 0.1 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.
Arsenic (As)	7440-38-2				< 1 mg/kg	< 0.2 mg/kg	
Cadmium (Cd)	7440-43-9				< 0.1 mg/kg	< 0.02 mg/kg	
Chromium (Cr)	7440-47-3				< 2 mg/kg – leather 250 mg/kg	< 0.1 mg/kg	
Cobalt (Co)	7440-48-4				< 4 mg/kg	< 0.1 mg/kg	
Copper (Cu)	7440-50-8				< 50 mg/kg	< 1 mg/kg	
Lead (Pb)	7439-92-1				< 1 mg/kg	< 0.2 mg/kg	
Mercury (Hg)	7439-97-6				< 0.02 mg/kg	< 0.005 mg/kg	
Nickel (Ni)	7440-02-0	< 4mg/kg	< 0.1 mg/kg				

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction					
Heavy Metals, Total Content												
Cadmium and its compounds	7440-43-9	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 23	Zero Discharge	EN 1122 -2001 for polymers	Usage ban for all polymer materials.	< 1 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.					
					For metal parts: < 40 mg/kg							
					Chromium VI (Cr VI)			18540-29-9	Chromium VI: European Union REACH Regulation (EC) No. 1907/2006 Annex XVII requirement: < 3 ppm (applies from May 1, 2015)	ISO 17075 -2008 aging test recommended	Usage ban	< 3 mg/kg for leather < 0.5 mg/kg for metal parts
											Lead and its compounds	7439-92-1
					Mercury (Hg)			7439-97-6	DIN EN ISO 105-E04-2009 (acid sweat solution) ICP	Usage ban for all polymer materials.		
										Lead (Pb)	7439-92-1	DIN EN ISO 105-E04-2009 (acid sweat solution) ICP
					Barium (Ba)			744-39-3	EUROPE: Regulation 1907/2006 SVHC REACH Candidate List			
Selenium (Se)	7782-49-2	EGYPT: ES 7322/2011 (children footwear <3 years) TAIWAN: CNS 15503 (children products <14 years)	EN 71-3 CNS 4797-9	< 500mg/kg		< 500mg/kg						
Heavy Metals, Releasable Nickel												
Nickel	7440-02-0	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 27	Zero Discharge	EN 12472:2005+A1 2009 Abrasion of coated items EN 1811:2011 Nickel release	< 0.5 µg nickel per cm ² per week.	In metal products or parts of products intended to be used for body piercings: < 0.2 µg nickel per cm ² per week (compliant if < 0.11µg)	Nickel can cause extreme allergies.					
				EN 16128		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						
						In spectacle frames and sunglasses intended to come into close and prolonged contact with the skin: < 0.5 µg nickel per cm ² per week (compliant if < 0.28µg)						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Organotin Compounds							
Tributyltin (TBT) + compounds	56573-85-4	1907/2006 REACH ANNEX XVII No. 20	Zero Discharge	ISO 17353-2004	TBT + TPHT : < 1.0 mg/kg DBT+ DOT: < 2.0 mg/kg	< 0.05 mg/kg	Organotin compounds are used as biocides (antibacterials), and/or heat stabilizers in plastics, inks, paints, and heat transfer material. It is also used to prevent unpleasant odours. Damage to liver, kidneys, blood forming processes and disruption of the enzyme system are possible particularly to children.
Triphenyltin (TPHT) + compounds	668-34-8						
Dibutyltin (DBT) + compounds	1002-53-5						
Diocetyl tin (DOT) + compounds	15231-44-4						
Perfluorinated Chemicals							
Perfluorooctanesulfonates (PFOS)	1763-23-1	EUROPE: Regulation (EU) No. 757/2010 amending POP Regulation 850/2004 SWITZERLAND: ORRChen annex 1.1 CANADA: CEPA 1999 Registration SOR 2008/178 NORWAY: Product Regulation section 2-32	Zero Discharge	Solvent extraction, LC-MS	Usage ban	< 1 µg/m2	Perfluorinated chemicals (PFC's) can be used as impregnation agents and cleaning products. PFC's are persistent, bioaccumulative and poisonous and possibly carcinogenic.
Perfluorooctane acids (PFOA)	335-67-1	Norway: Product Regulations Section 2-32 "" Consumer products that contain perfluorooctanic acid"" effective date June 2014 Textiles and coated consumers products EUROPE: REACH Regulation 1907/2006 Candidate List					
1H,1H,2H,2H-Perfluorooctylacrylate (6:2 FTA)	17527-29-6						
1H,1H,2H,2H-Perfluorodecylacrylate (8:2 FTA)	27905-45-9						
1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA)	17741-60-05						
1H,1H,2H,2H-Perfluoro-1-hexanol (4:2 FTOH)	2043-47-2						
1H,1H,2H,2H-Perfluoro-1-oktanol (6:2 FTOH)	647-42-7						
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7						
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Phthalates							
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 51 a + Annex XIV, 4 + Candidate list, Egypt, S.Korea and USA.	Zero Discharge	EN 15777 (modified)	Usage ban: For every single substance	< 0.005 %.(= < 50 mg/kg)	Phthalates are added to plastics to increase flexibility. In textiles and apparel, phthalates can be found in plastic components, trims and plastisol prints. Phthalates are reprotoxic and can cause birth defects and changes in hormone levels. A complete ban of Phthalates is recommended.
Dibutyl phthalate (DBP)	84-74-2	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 51 b + Annex XIV, 6 + Candidate list, Egypt, S.Korea and USA.					
Butylbenzyl phthalate (BBP)	85-68-7	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No. 51 c + Annex XIV, 5 + Candidate list, Egypt, S.Korea and USA.					
Di-"isononyl" phthalate (DINP)	28553-12-0 and 68515-48-0	EUROPE: Regulation 1907/2006 REACH ANNEX XVII No.52 a,b,c + Egypt, S.Korea and USA.					
Di-"isodecyl phthalate (DIDP)	26761-40-0 and 68515-49-1	EUROPE: Regulation 1907/2006 REACH ANNEX XIV, 7 + Candidate list					
Di-n-octyl phthalate (DNOP)	117-84-0						
Di-isobutyl phthalate (DIBP)	84-69-5						
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	EUROPE: Regulation 1907/2006 SVHC for REACH Candidate List.					
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6						
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0						
Di-iso-pentyl phthalate (DIPP)	605-50-5						
n-Pentyl-isopentyl phthalate (NPIPP)	776297-69-9						
Di-n-pentyl phthalate (DnPP)	131-18-0						
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8	ECHA CLP list.					
Di-n-hexyl phthalate (DHP)	84-75-3						
Dimethyl phthalate (DMP)	131-11-3						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Polychlorinated Biphenyls (Pcb's) And Polychlorinated Terphenyls (Pct's)							
Polychlorinated biphenyls (PCB's)	1336-36-3	EUROPE: POP Regulation 850/2004 Canada, Finland, Germany, Norway and Switzerland		U.S. EPA 8081/82 modified GC-MS	Usage ban	< 0.1 mg/kg	PCB's and PCT's are persistent organic pollutants and have entered the environment through both use and disposal. PCBs and PCT's are used as plasticizers, pigments, adhesives, insecticides; flame retardants and in water repellent finishes.
Polychlorinated terphenyls (PCT's)	61788-33-8	CANADA: Prohibition of Certain Toxic Substances Regulation 2012 (SOR/2012-285)					
Polycyclic Aromatic Hydrocarbons (PAH'S)							
Benzo(a)pyrene	50-32-8	TAIWAN: CNS 3478 plastic shoes and CNS 15503 children products (<14 years) EUROPE: Regulation (EU) No. 552/2009 amending REACH Regulation 1907/2006 as regards ANNEX XVII No. 50 The authoritative German Federal Institute for Risk Assessment (BfR) strongly advises a max. of 0.2mg/kg in articles of PAH's mentioned. Please note that the advice is not legally binding, but most German buyers treat it as legislative requirement.		DIN ISO 18287 modified or EPA 525.2	Usage ban	<0.2mg/kg (each)	Rubber or plastic components that come into direct and prolonged contact with human skin or the oral cavity can cause severe allergic reactions. RELEVANT FOR FOOTWEAR
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						
Benzo(j)fluoranthene	205-82-3						
Acenaphthene	83-32-9						
Acenaphthylene	208-96-8						
Anthracene	120-12-7	TAIWAN: CNS 3478 plastic shoes and CNS 15503 children products (<14 years) US EPA Restricted			sum < 10 mg/kg		
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						

RESTRICTED SUBSTANCES LIST 1.3

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Polymers & Polymer Auxiliaries							
Polyvinylchloride	9002-86-2	Use voluntarily restricted by an increasing number of companies		FT-IR (if Beilstein test positive)	Usage ban in clothing and packaging	n.d.	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	80-05-7			Solvent Extraction/GC-MS/LC-MS	Usage ban for all polymer materials.	< 1 mg/kg	Bisphenol A can be found in plastic materials such as Polycarbonat. This substance is considered to be toxic to reproduction.
Other Solvents/ Volatile Organic Compounds (Voc)							
Benzene	71-43-2	GERMANY: § 30 Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch		Head space GC-MS	Usage ban	Usage ban	Solvents are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial solvents include thinners and dry cleaning solvents Xylene, MEK and Cyclohexanone are typical for solvent coatings and can be found in buckles, zippers, buttons that are with laquers. Acetophenone is typical only for EVA plastics (but not intended; it's a degradation product).
Toluene	108-88-3						
Styrene	100-42-5				< 10 mg/kg	< 1 mg/kg	
2-Phenyl-2-propanole	617-94-7						
Ethylbenzene	100-41-4						
Xylene	1330-20-7						
Orthoxylene	95-47-6						
Metaxylene	108-38-3						
Paraxylene	106-42-3						
Acetophenone	98-86-2						
Cyclohexanone	108-94-1						
MEK (Methyl-Ethyl-Ketone)	78-93-3				< 100 mg/kg	< 10 mg/kg	
DMFa (N,N Dimethylformamide)	68-12-2	EUROPE: Regulation 1907/2006 SVHC for REACH Candidate List.		Solvent Extraction/GC-MS	< 200 mg/kg	< 5 mg/kg	
Other Attention Points							
pH value for textiles		CHINA; China National General Safety Code for Textile Products GB 18401-2010 Korea KC Mark		ISO 3071	Articles with direct skin contact: 4.0 - 7.5 Articles without direct skin contact: 4.0 - 9.0		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.
pH value for leather			ISO 4045				
ODOUR		CHINA; China National General Safety Code for Textile Products GB 18401-2010		SNV 195651	No abnormal or unpleasant odour allowed. If odour rating < 3, VOC test to be performed.		

G-STAR RAW
APPENDIX RSL

VERSION 1.3 - NOVEMBER 2014

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Asbestos							
Actinolite	77536-66-4	EUROPE:Regulation 1907/2006 REACH ANNEX XVII, No. 6		Microscopic examination	Usage ban	n.d.	Asbestos fibres are strong, durable and fire resistant consisting of silicate minerals. Unlikely to be used in everyday wear except for fire fighting. Asbestos fibres are carcinogenic.
Amosite	12172-73-5						
Anthophyllite	77536-67-5						
Chrysotile	12001-29-5						
Crocidolite	12001-28-4						
Tremolite	77536-68-6						

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Pesticides							
2,4,5-T	93-76-5	FINLAND: Ministry of Environment Government Decree on persistent organic substances (735/2002) SWITZERLAND: Art. 9, 11, 35 and 61 Ordinance relating to Environmentally Hazardous Substances (Ordinance on Substances)		U.S. EPA Method 8081B/ 8151A	< 0.5 mg/kg limit value applies to total sum of pesticides.	< 0.2 mg/kg	A pesticide may be a chemical substance, biological agent (such as a virus or bacteria), antimicrobial, disinfectant or device used against any pest. Pesticides also have drawbacks: potential toxicity to humans and animals. In textiles and apparel, these pesticides may be found in natural fibres, primarily cotton.
2,4-D	94-75-7						
Azinophosmethyl	86-50-0						
Azinophosethyl	2642-71-9						
Aldrine	309-00-2						
Bromophos-ethyl	4824-78-6						
Captafol	2425-06-1						
Carbaryl	63-25-2						
Chlordane	57-74-9						
Chlordimeform	1970-95-9						
Chlorfenvinphos	470-90-6						
Coumaphos	56-72-4						
Cyfluthrin	68359-37-5						
Cyhalothrin	91465-08-6						
Cypermethrin	52315-07-8						
DEF	78-48-8						
Deltamethrin	52918-63-5						
DDD	53-19-0, 72-54-8						
DDE	3424-82-6, 72-55-9						
Diazinon	333-41-5						
Dichlorprop	120-36-2						
Dicrotophos	141-66-2						
Dieldrine	60-57-1						
Dimethoate	60-51-5						
Dinoseb and salts	88-85-7						
Endosulfan, -	115-29-7						
β-Endosulfan	33213-65-9						

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Pesticides Continued							
Endrine	72-20-8	FINLAND: Ministry of Environment Government Decree on persistent organic substances (735/2002) SWITZERLAND: Art. 9, 11, 35 and 61 Ordinance relating to Environmentally Hazardous Substances (Ordinance on Substances)		U.S. EPA Method 8081B/ 8151A	< 0.5 mg/kg limit value applies to total sum of pesticides.	< 0.2 mg/kg	A pesticide may be a chemical substance, biological agent (such as a virus or bacteria), antimicrobial, disinfectant or device used against any pest. Pesticides also have drawbacks: potential toxicity to humans and animals. In textiles and apparel, these pesticides may be found in natural fibres, primarily cotton.
Esfenvalerate	66230-04-4						
Fenvalerate	51630-58-1						
Heptachlor	76-44-8						
Heptachloroepoxide	1024-57-3						
Hexachlorobenzene	118-74-1						
Hexachlorocyclohexane,	319-84-6						
β-Hexachlorocyclohexane	319-85-7						
-Hexachlorocyclohexane	319-86-8						
Isodrine	465-73-6						
Kelevane	4234-79-1						
Kepone	143-50-0						
Lindane	58-89-9						
Malathion	121-75-5						
MCPA	94-74-6						
MCPB	94-81-5						
Mecoprop	93-65-2						
Metamidophos	10265-92-6						
Methoxychlor	72-43-5						
Mirex	2385-85-5						
Monocrotophos	6923-22-4						
Parathion	56-38-2						
Parathion-methyl	298-00-0						

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Pesticides Continued							
Perthane	72-56-0	FINLAND: Ministry of Environment Government Decree on persistent organic substances (735/2002)		U.S. EPA Method 8081B/ 8151A	< 0.5 mg/kg limit value applies to total sum of pesticides.	< 0.2 mg/kg	A pesticide may be a chemical substance, biological agent (such as a virus or bacteria), antimicrobial, disinfectant or device used against any pest. Pesticides also have drawbacks: potential toxicity to humans and animals. In textiles and apparel, these pesti- cides may be found in natural fibres, primarily cotton.
Phosdrin/Mevinphos	7786-34-7						
Propethamphos	31218-83-4						
Profenophos	41198-08-7						
Quinalphos	13593-03-8	SWITZERLAND: Art. 9, 11, 35 and 61 Ordinance relating to Environmentally Hazardous Substances (Ordinance on Substances)					
Strobane	8001-50-1						
Telodrine	297-78-9						
Toxaphen	8001-35-2						
Trifluralin	1582-09-8						

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Dioxins And Furans							
Group 1:	Several	GERMANY: Abschnitt 4 ChemikalienverbotsVO		U.S. EPA Method 8290A	Usage ban	Sum of all traces group 1: 0.1 µg/kg	Dioxins/furans are common by-products of incomplete burning of organics in a chlorine rich environment. They are often associated with the production of pesticides and PVC.
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6						
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4						
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9						
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4						
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6						
Group 2:	Several						
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6						
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7						
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3						
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6						
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9						
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9						
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9						
2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5						
Group 3:	Several						
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9						
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9						
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4						
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7						
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0						
Group 4:	Several						
2,3,7,8-Tetrabromodibenzo-p-dioxin	50585-41-6						
1,2,3,7,8-Pentabromodibenzo-p-dioxin	109333-34-8						
2,3,7,8-Tetrabromodibenzofuran	67733-57-7						
2,3,4,7,8-Pentabromodibenzofuran	131166-92-2						

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Dioxins And Furans Continued							
Group 5:	Several	GERMANY: Abschnitt 4 ChemikalienverbotsVO		U.S. EPA Method 8290A	Usage ban	Sum of all traces group 4 and 5: 1 µg/kg	Dioxins/furans are common by-products of incomplete burning of organics in a chlorine rich environment. They are often associated with the production of pesticides and PVC.
1,2,3,4,7,8-Hexabromodibenzo-p-dioxin	110999-44-5						
1,2,3,6,7,8-Hexabromodibenzo-p-dioxin	110999-45-6						
1,2,3,7,8,9-Hexabromodibenzo-p-dioxin	110999-46-7						
1,2,3,7,8-Pentabromodibenzofuran	107555-93-1						
Fluorinated Greenhouse Gases							
Sulphur hexafluoride - SF6	2551-62-4	EUROPE: Regulation (EC) No. 842/2006 of the European Parliament an of the Council		Head space GC-MS	Usage ban	< 0.1 mg/kg for every single listed substance	Chlorofluorocarbons and Hydro fluorocarbons, are ozone depleting substances. Other applications include foam-blowing, solvent cleaning and textile coating.
Perfluorocarbons (PFCs)							
Perfluoromethane (CF4)	75-73-0						
Perfluoroethane (C2F6)	76-16-4						
Perfluoropropane (C3F8)	76-19-7						
Perfluorobutane (C4F10)	355-25-9						
Perfluoropentane (C5F12)	678-26-2						
Perfluorohexane (C6F14)	355-42-0						
Perfluorocyclohexane (c-C4F8)	115-25-3						
Hydrofluorocarbons (HFCs)							
HFC-23 - CHF3	75-46-7						
HFC-32 - CH2F2	75-10-5						
HFC-41 - CH3F	593-53-3						

STRICTLY FORBIDDEN SUBSTANCES WHICH NEED A CERTIFICATE OF CONFORMITY - FROM THE SUPPLIER

Substance	Cas number	Regulation	Zero Discharge	Test method	G-Star restricted limit	Reporting Limit = Usage Ban	Relevance Of Restriction
Fluorinated Greenhouse Gases Continued							
HFC-43-10mee - C5H2F10	138495-42-8	EUROPE: Regulation (EC) No. 842/2006 of the European Parliament and of the Council		Head space GC-MS	Usage ban	< 0.1 mg/kg for every single listed substance	Chlorofluorocarbons and Hydro fluorocarbons, are ozone depleting substances. Other applications include foam-blowing, solvent cleaning and textile coating.
HFC-125 - C2HF5	354-33-6						
HFC-134 - C2H2F4	359-35-3						
HFC-134a - CH2FCF3	811-97-2						
HFC-152a - C2H4F2	75-37-6						
HFC-143 - C2H3F3	430-66-0						
HFC-143a - C2H3F3	420-46-2						
HFC-227ea - C3HF7	431-89-0						
HFC-236cb - CH2FCF2CF3	677-56-5						
HFC-236ea - CHF2CHF3	431-63-0						
HFC-236fa - C3H2F6	690-39-1						
HFC-245ca - C3H3F5	679-86-7						
HFC-245fa - CHF2CH2CF3	460-73-1						
HFC-365mfc - CF3CH2CF2CH3	406-58-6						

G-STAR RAW
REACH REGULATION 1907/2006

VERSION 1.3 - NOVEMBER 2014

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

ECHA, the European Chemical Agency located in Helsinki, Finland is the organization managing the REACH process. REACH is the abbreviation for Registration, Evaluation, Authorisation and Restriction of Chemicals.

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

Any producer or importer of articles shall submit a notification to the Agency for any substance contained in those articles, if the following conditions are met:

- a) a substance of the candidate list is present in the imported/produced articles with over 0.1% w/w.
- b) this substance is present in all produced or imported articles with an amount of over 1 ton a year per importer or producer.

Any producer or importer of articles shall immediately inform his client. The end consumer has to be informed on request within 45 days, if the following conditions is met:

A substance of the Candidate list is present in the imported or produced article above a concentration of 0.1% w/w.

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 ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
Cadmium chloride	233-296-7	10108-64-2	16/06/14	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)	ED/49/2014
Sodium peroxometaborate	231-556-4	.7632-04-4	16/06/14	Toxic for reproduction (Article 57 c)	ED/49/2014
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	271-093-5	68515-50-4	16/06/14	Toxic for reproduction (Article 57 c)	ED/49/2014
Sodium perborate; perboric acid, sodium salt	239-172-9, 234-390-0	-	16/06/14	Toxic for reproduction (Article 57 c)	ED/49/2014
Cadmium sulphide	215-147-8	1306-23-6	16/12/13	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/121/2013
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)	217-710-3	1937-37-7	16/12/13	Carcinogenic (Article 57a);	ED/121/2013
Dihexyl phthalate	201-559-5	84-75-3	16/12/13	Toxic for reproduction (Article 57 c);	ED/121/2013
Imidazolidine-2-thione; (2-imidazoline-2-thiol)	202-506-9	96-45-7	16/12/13	Toxic for reproduction (Article 57 c);	ED/121/2013
Triethyl phosphate	246-677-8	25155-23-1	16/12/13	Toxic for reproduction (Article 57 c);	ED/121/2013
Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	209-358-4	573-58-0	16/12/13	Carcinogenic (Article 57a);	ED/121/2013
Lead di(acetate)	206-104-4	301-04-2	16/12/13	Toxic for reproduction (Article 57 c);	ED/121/2013
Cadmium	231-152-8	7440-43-9	20/06/13	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/69/2013
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]	-	-	20/06/13	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	ED/69/2013
Ammonium pentadecafluorooctanoate (APFO)	223-320-4	3825-26-1	20/06/13	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	ED/69/2013
Pentadecafluorooctanoic acid (PFOA)	206-397-9	335-67-1	20/06/13	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	ED/69/2013
Dipentyl phthalate (DPP)	205-017-9	131-18-0	20/06/13	Toxic for reproduction (Article 57 c);	ED/69/2013
Cadmium oxide	215-146-2	1306-19-0	20/06/13	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/69/2013

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
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]	247-0941, 243-072-0, 256-356-4, 260-566-1	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	19/12/12	Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/169/2012
6-methoxy-m-toluidine (p-cresidine)	204-419-1	120-71-8	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
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]	201-604-9, 236-086-3, 238-009-9	85-42-7, 13149-00-3, 14166-21-3	19/12/12	Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/169/2012
Pyrochlore, antimony lead yellow	232-382-1	8012-00-8	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Henicosafleuroundecanoic acid	218-165-4	2058-94-8	19/12/12	vPvB (Article 57 e)	ED/169/2012
4-Aminoazobenzene	200-453-6	60-09-3	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
Silicic acid, lead salt	234-363-3	11120-22-2	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Lead titanium zirconium oxide	235-727-4	12626-81-2	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Lead monoxide (lead oxide)	215-267-0	1317-36-8	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
o-Toluidine	202-429-0	95-53-4	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	421-150-7	143860-04-2	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Dibutyltin dichloride (DBTC)	211-670-0	683-18-1	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Lead bis(tetrafluoroborate)	237-486-0	13814-96-5	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Lead dinitrate	233-245-9	10099-74-8	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
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]	272-271-5	68784-75-8	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Trilead bis(carbonate)dihydroxide	215-290-6	1319-46-6	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
4,4'-methylenedi-o-toluidine	212-658-8	838-88-0	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
Diethyl sulphate	200-589-6	64-67-5	19/12/12	Carcinogenic (Article 57a); Mutagenic (Article 57b)	ED/169/2012
Dimethyl sulphate	201-058-1	77-78-1	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
N,N-dimethylformamide	200-679-5	68-12-2	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	-	-	19/12/12	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	ED/169/2012

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
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]	-	-	19/12/12	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	ED/169/2012
Furan	203-727-3	110-00-9	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
Lead oxide sulfate	234-853-7	12036-76-9	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Lead titanium trioxide	235-038-9	12060-00-3	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	214-604-9	1163-19-5	19/12/12	PBT (Article 57 d); vPvB (Article 57 e)	ED/169/2012
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	201-861-7	88-85-7	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
,2-Diethoxyethane	211-076-1	629-14-1	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
N-methylacetamide	201-182-6	79-16-3	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Tetralead trioxide sulphate	235-380-9	12202-17-4	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Acetic acid, lead salt, basic	257-175-3	51404-69-4	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
[Phthalato(2-)]dioxotrilead	273-688-5	69011-06-9	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Tetraethyllead	201-075-4	78-00-2	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
N-pentyl-isopentylphthalate	-	776297-69-9	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Pentalead tetraoxide sulphate	235-067-7	12065-90-6	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Heptacosafuorotetradecanoic acid	206-803-4	376-06-7	19/12/12	vPvB (Article 57 e)	ED/169/2012
Tricosafuorododecanoic acid	206-203-2	307-55-1	19/12/12	vPvB (Article 57 e)	ED/169/2012
1-bromopropane (n-propyl bromide)	203-445-0	106-94-5	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Dioxobis(stearato)trilead	235-702-8	12578-12-0	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Pentacosafuorotridecanoic acid	276-745-2	72629-94-8	19/12/12	vPvB (Article 57 e)	ED/169/2012
Methoxyacetic acid	210-894-6	625-45-6	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Methyloxirane (Propylene oxide)	200-879-2	75-56-9	19/12/12	Carcinogenic (Article 57a); Mutagenic (Article 57b)	ED/169/2012
Trilead dioxide phosphonate	235-252-2	12141-20-7	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
o-aminoazotoluene	202-591-2	97-56-3	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	202-453-1	95-80-7	19/12/12	Carcinogenic (Article 57a)	ED/169/2012
Diisopentylphthalate	210-088-4	605-50-5	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	284-032-2	84777-06-0	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Biphenyl-4-ylamine	202-177-1	92-67-1	19/12/12	Carcinogenic (Article 57a)	ED/169/2012

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
Fatty acids, C16-18, lead salts	292-966-7	91031-62-8	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Orange lead (lead tetroxide)	215-235-6	1314-41-6	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
4,4'-oxydianiline and its salts	202-977-0	101-80-4	19/12/12	Carcinogenic (Article 57a); Mutagenic (Article 57b)	ED/169/2012
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	204-650-8	123-77-3	19/12/12	Equivalent level of concern having probable serious effects to human health (Article 57 f)	ED/169/2012
Sulfurous acid, lead salt, dibasic	263-467-1	62229-08-7	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
Lead cyanamidate	244-073-9	20837-86-9	19/12/12	Toxic for reproduction (Article 57 c)	ED/169/2012
, -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)]	229-851-8	6786-83-0	18/06/12	Carcinogenic (Article 57a)	ED/87/2012
[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)]	208-953-6	548-62-9	18/06/12	Carcinogenic (Article 57a)	ED/87/2012
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	202-959-2	101-61-1	18/06/12	Carcinogenic (Article 57a)	ED/87/2012
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (-TGIC)	423-400-0	59653-74-6	18/06/12	Mutagenic (Article 57b)	ED/87/2012
Diboron trioxide	215-125-8	1303-86-2	18/06/12	Toxic for reproduction (Article 57 c)	ED/87/2012
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	203-977-3	112-49-2	18/06/12	Toxic for reproduction (Article 57 c)	ED/87/2012
Formamide	200-842-0	75-12-7	18/06/12	Toxic for reproduction (Article 57 c)	ED/87/2012
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)]	209-218-2	561-41-1	18/06/12	Carcinogenic (Article 57a)	ED/87/2012
Lead(II) bis(methanesulfonate)	401-750-5	17570-76-2	18/06/12	Toxic for reproduction (Article 57 c)	ED/87/2012
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	203-794-9	110-71-4	18/06/12	Toxic for reproduction (Article 57 c)	ED/87/2012
[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)]	219-943-6	2580-56-5	18/06/12	Carcinogenic (Article 57a)	ED/87/2012
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	219-514-3	2451-62-9	18/06/12	Mutagenic (Article 57b)	ED/87/2012
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	202-027-5	90-94-8	18/06/12	Carcinogenic (Article 57a)	ED/87/2012
Phenolphthalein	201-004-7	77-09-8	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
N,N-dimethylacetamide	204-826-4	127-19-5	19/12/11	Toxic for reproduction (article 57 c)	ED/77/2011
4-(1,1,3,3-tetramethylbutyl)phenol	205-426-2	140-66-9	19/12/11	Equivalent level of concern having probable serious effects to the environment (article 57 f)	ED/77/2011
Lead diazide, Lead azide	236-542-1	13424-46-9	19/12/11	Toxic for reproduction (article 57 c),	ED/77/2011
Lead dipicrate	229-335-2	6477-64-1	19/12/11	Toxic for reproduction (article 57 c)	ED/77/2011

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
1,2-dichloroethane	203-458-1	107-06-2	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
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.	-	-	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
					ED/95/2012
Calcium arsenate	231-904-5	7778-44-1	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
Dichromium tris(chromate)	246-356-2	24613-89-6	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
2-Methoxyaniline; o-Anisidine	201-963-1	90-04-0	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
Pentazinc chromate octahydroxide	256-418-0	49663-84-5	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
Arsenic acid	231-901-9	7778-39-4	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
Potassium hydroxyoctaoxodizincatedichromate	234-329-8	11103-86-9	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
Formaldehyde, oligomeric reaction products with aniline	500-036-1	25214-70-4	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
Lead stypnate	239-290-0	15245-44-0	19/12/11	Toxic for reproduction (article 57 c)	ED/77/2011
Bis(2-methoxyethyl) phthalate	204-212-6	117-82-8	19/12/11	Toxic for reproduction (article 57 c)	ED/77/2011
Trilead diarsenate	222-979-5	3687-31-8	19/12/11	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/77/2011
Bis(2-methoxyethyl) ether	203-924-4	111-96-6	19/12/11	Toxic for reproduction (article 57 c)	ED/77/2011
2,2'-dichloro-4,4'-methylenedianiline	202-918-9	101-14-4	19/12/11	Carcinogenic (article 57 a)	ED/77/2011
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.	-	-	19/12/11	Carcinogenic (article 57 a)	ED/77/2011 / ED/95/2012
Cobalt dichloride	231-589-4	7646-79-9	2011/06/20 - 2008/10/28	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/31/2011 / ED/67/2008
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	276-158-1	71888-89-6	20/06/11	Toxic for reproduction (article 57c)	ED/31/2011
Strontium chromate	232-142-6	7789-06-2	20/06/11	Carcinogenic (article 57a)	ED/31/2011

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	271-084-6	68515-42-4	20/06/11	Toxic for reproduction (article 57c)	ED/31/2011
1-Methyl-2-pyrrolidone	212-828-1	872-50-4	20/06/11	Toxic for reproduction (article 57c)	ED/31/2011
1,2,3-Trichloropropane	202-486-1	96-18-4	20/06/11	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/31/2011
2-Ethoxyethyl acetate	203-839-2	111-15-9	20/06/11	Toxic for reproduction (article 57c)	ED/31/2011
Hydrazine	206-114-9	302-01-2, 7803-57-8	20/06/11	Carcinogenic (article 57a)	ED/31/2011
Cobalt(II) diacetate	200-755-8	71-48-7	15/12/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/95/2010
2-Ethoxyethanol	203-804-1	110-80-5	15/12/10	Toxic for reproduction (article 57c)	ED/95/2010
Cobalt(II) sulphate	233-334-2	10124-43-3	15/12/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/95/2010
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.	231-801-5, 236-881-5	7738-94-5, 13530-68-2	15/12/10	Carcinogenic (article 57a)	ED/95/2010
2-Methoxyethanol	203-713-7	109-86-4	15/12/10	Toxic for reproduction (article 57c)	
Chromium trioxide	215-607-8	1333-82-0	15/12/10	Carcinogenic and mutagenic (articles 57 a and 57 b)	ED/95/2010
Cobalt(II) carbonate	208-169-4	513-79-1	15/12/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/95/2010
Cobalt(II) dinitrate	233-402-1	10141-05-6	15/12/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/95/2010
Trichloroethylene	201-167-4	79-01-6	18/06/10	Carcinogenic (article 57 a)	ED/95/2010
Potassium dichromate	231-906-6	7778-50-9	18/06/10	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)	ED/30/2010
Tetraboron disodium heptaoxide, hydrate	235-541-3	12267-73-1	18/06/10	Toxic for reproduction (article 57 c)	ED/30/2010
Boric acid	233-139-2, 234-343-4	10043-35-3, 11113-50-1	18/06/10	Toxic for reproduction (article 57 c)	ED/30/2010
Ammonium dichromate	232-143-1	7789-09-5	18/06/10	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)	ED/30/2010
Sodium chromate	231-889-5	7775-11-3	18/06/10	Carcinogenic, mutagenic and toxic for reproduction (articles 57 a, 57 b and 57 c)	ED/30/2010
Disodium tetraborate, anhydrous	215-540-4	1303-96-4, 1330-43-4, 12179-04-3	18/06/10	Toxic for reproduction (article 57 c)	ED/30/2010
Potassium chromate	232-140-5	7789-00-6	18/06/10	Carcinogenic and mutagenic (articles 57 a and 57 b).	ED/30/2010
Acrylamide	201-173-7	79-06-1	30/03/10	Carcinogenic and mutagenic (articles 57 a and 57 b)	ED/30/2010
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	215-693-7	1344-37-2	13/01/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c))	ED/68/2009
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	235-759-9	12656-85-8	13/01/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/68/2009
2,4-Dinitrotoluene	204-450-0	121-14-2	13/01/10	Carcinogenic (article 57a)	ED/68/2009
Anthracene oil	292-602-7	90640-80-5	13/01/10	Carcinogenic1, PBT and vPvB (articles 57a, 57d and 57e)	ED/68/2009

REACH ANNEX ECHA'S CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN LAST UPDATE 16-06-2014

Substance Name	EC Number	CAS Number	Date of Inclusion	Reason for Inclusion	Decision Number
Anthracene oil, anthracene paste, anthracene fraction	295-275-9	91995-15-2	13/01/10	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009
Anthracene oil, anthracene-low	292-604-8	90640-82-7	13/01/10	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009
Diisobutyl phthalate	201-553-2	84-69-5	13/01/10	Toxic for reproduction (article 57c)	ED/68/2009
Tris(2-chloroethyl)phosphate	204-118-5	115-96-8	13/01/10	Toxic for reproduction (article 57c)	ED/68/2009
Lead chromate	231-846-0	7758-97-6	13/01/10	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/68/2009
Anthracene oil, anthracene paste	292-603-2	90640-81-6	13/01/10	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009
Pitch, coal tar, high temp.	266-028-2	65996-93-2	13/01/10	Carcinogenic, PBT and vPvB (articles 57a, 57d and 57e)	ED/68/2009
Anthracene oil, anthracene paste, distn. lights	295-278-5	91995-17-4	13/01/10	Carcinogenic ² , mutagenic ³ , PBT and vPvB (articles 57a, 57b, 57d and 57e)	ED/68/2009
Lead hydrogen arsenate	232-064-2	7784-40-9	28/10/08	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	ED/68/2009
Benzyl butyl phthalate (BBP)	201-622-7	85-68-7	28/10/08	Toxic for reproduction (article 57c)	ED/67/2008
Bis (2-ethylhexyl)phthalate (DEHP)	204-211-0	117-81-7	28/10/08	Toxic for reproduction (article 57c)	ED/67/2008
Bis(tributyltin)oxide (TBTO)	200-268-0	56-35-9	28/10/08	PBT (article 57d)	ED/67/2008
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	201-329-4	81-15-2	28/10/08	vPvB (article 57e)	ED/67/2008
Diarsenic trioxide	215-481-4	1327-53-3	28/10/08	Carcinogenic (article 57a)	ED/67/2008
Triethyl arsenate	427-700-2	15606-95-8	28/10/08	Carcinogenic (article 57a)	ED/67/2008
Diarsenic pentoxide	215-116-9	1303-28-2	28/10/08	Carcinogenic (article 57a)	ED/67/2008
Sodium dichromate	234-190-3	7789-12-0, 10588-01-9	28/10/08	Carcinogenic, mutagenic and toxic for reproduction (articles 57a, 57b and 57c)	ED/67/2008
Dibutyl phthalate (DBP)	201-557-4	84-74-2	28/10/08	Toxic for reproduction (article 57c)	ED/67/2008
4,4'- Diaminodiphenylmethane (MDA)	202-974-4	101-77-9	28/10/08	Carcinogenic (article 57a)	ED/67/2008
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	287-476-5	85535-84-8	28/10/08	PBT and vPvB (articles 57 d and 57 e)	ED/67/2008
Anthracene	204-371-1	120-12-7	28/10/08	PBT (article 57d)	ED/67/2008
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane	247-148-4 and 221-695-9	25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8)	28/10/08	PBT (article 57d)	ED/67/2008

ANNEX XIV LIST OF SUBSTANCES SUBJECT TO AUTHORISATION LAST UPDATE: 19-08-2014

Entry Nr.	Substance Name	EC Number	CAS Number	Sunset date	Latest application date
1	5-tert-butyl-2,4,6-trinitro-m-xylene (Musk xylene)	201-329-4	81-15-2	21/08/2014	21/02/2013
2	4,4'-Diaminodiphenylmethane (MDA)	202-974-4	101-77-9	21/08/2014	21/02/2013
3	16/10/201416/10/2014	201-622-7	85-68-7	21/02/2015	21/08/2013
4	Bis(2-ethylhexyl) phthalate (DEHP)	204-211-0	117-81-7	21/02/2015	21/08/2013
5	Dibutyl phthalate (DBP)	201-557-4	84-74-2	21/02/2015	21/08/2013
6	Diisobutyl phthalate (DIBP)	201-553-2	84-69-5	21/02/2015	21/08/2013
7	Diarsenic pentaoxide	215-116-9	1303-28-2	21/05/2015	21/11/2013
8	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	215-693-7	1344-37-2	21/05/2015	21/11/2013
9	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	235-759-9	12656-85-8	21/05/2015	21/11/2013
10	Diarsenic trioxide	215-481-4	1327-53-3	21/05/2015	21/11/2013
11	Lead chromate	231-846-0	7758-97-6	21/05/2015	21/11/2013
12	Hexabromocyclododecane (HBCDD), alpha-hexabromocyclododecane, beta-hexabromocyclododecane, gamma-hexabromocyclododecane	221-695-9, 247-148-47	3194-55-6, 25637-99-4, 134237-50-6, 134237-51-7, 134237-52-8	21/08/2015	21/02/2014
13	2,4 – Dinitrotoluene (2,4-DNT)	204-450-0	121-14-2	21/08/2015	21/02/2014
14	Tris(2-chloroethyl)phosphate (TCEP)	204-118-5	115-96-8	21/08/2015	21/02/2014
15	Trichloroethylene	201-167-4	79-01-6	21/04/2016	21/10/2014
16	Arsenic acid	231-901-9	7778-39-4	22/08/2017	22/02/2016
17	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	500-036-1	25214-70-4	22/08/2017	22/02/2016
18	Bis(2-methoxyethyl) ether	203-924-4	111-96-6	22/08/2017	22/02/2016
19	Ammonium dichromate	232-143-1	7778-09-5	21/09/2017	21/03/2016
20	Potassium chromate	232-140-5	7789-00-6	21/09/2017	21/03/2016
21	Acids generated from chromium trioxide and their oligomers Group containing: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid	"231-801-5, 236-881-5"	"7738-94-5, 13530-68-2"	21/09/2017	21/03/2016

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ANNEX XIV LIST OF SUBSTANCES SUBJECT TO AUTHORISATION LAST UPDATE: 19-08-2014

Entry Nr.	Substance Name	EC Number	CAS Number	Sunset date	Latest application date
22	Chromium trioxide	215-607-8	1333-82-0	21/09/2017	21/03/2016
23	Potassium dichromate	231-906-6	7778-50-9	21/09/2017	21/03/2016
24	Sodium chromate	231-889-5	7775-11-3	21/09/2017	21/03/2016
25	Sodium dichromate	234-190-3	7789-12-0, 10588-01-9"	21/09/2017	21/03/2016
26	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	202-918-9	101-14-4	22/11/2017	22/05/2016
27	1,2-dichloroethane (EDC)	203-458-1	107-06-2	22/11/2017	22/05/2016
28	Penntazinc chromate octahydroxide	256-418-0	49663-84-5	22/01/2019	22/07/2017
29	Potassium hydroxyoctaoxidizincatedichromate	234-329-8	11103-86-9	22/01/2019	22/07/2017
30	Dichromium tris(chromate)	246-356-2	24613-89-9	22/01/2019	22/07/2017
31	Strontium chromate	232-142-6	7789-06-2	22/01/2019	22/07/2017

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G-STAR RAW
MATERIAL FLOWCHART

VERSION 1.3 - NOVEMBER 2014

FABRICS & YARNS OF NATURAL ORIGIN INCL. REGENERATED NATURAL FIBRES, EXCLUDING LEATHER

GENERAL	ARE THE FABRICS / YARNS DYED?	ARE THE FIBRES / YARNS / FABRIC FINISHED/COATED?	HAS THE FABRIC / GARMENT BEEN PRINTED?	ARE THE FABRIC / YARNS FOR WORKING CLOTHES ?
↓	↓	↓	↓	↓
pH VALUE	AZO DYES	CHLOROBENZENES + TOLUENES	AZO DYES	FLAME RETARDANTS
PESTICIDES	CARCINOGENIC DYES	HEAVY METALS (extractable) CADMIUM & LEAD	ORGANOTIN COMPOUNDS	
CHLORINATED PHENOLS OPP PCP, TeCP,	NAVY BLUE 018112	PHthalATES	CADMIUM COMPOUNDS	
PFOS & PFOA	HEAVY METALS (extractable)	PAH's	PHthalATES	
AP & APEO	AP & APEO	ORGANOTIN COMPOUNDS	PVC	
FLUORINATED GREENHOUSE GASSES	PFOS & PFOA	↓	↓	
		IS THE TREATMENT FOR ANTI-CREASING, ANTI-SHRINKAGE OR WATER REPELLENCE?	HAS THE GARMENT BEEN WASHED?	
		↓	↓	
		PFOS & PFOA	AP & APEO	
		FORMALDEHYDE		

FABRICS & YARNS OF SYNTHETIC ORIGIN AND BLENDS

GENERAL	ARE THE FABRICS / YARNS DYED?	ARE THE FIBRES / YARNS FINISHED/COATED?	HAS THE FABRIC / GARMENT BEEN PRINTED?	ARE THE FABRIC / YARNS FOR WORKING CLOTHES?
↓	↓	↓	↓	↓
pH VALUE	AZO DYES	CHLOROBENZENES + TOLUENES	AZO DYES	FLAME RETARDANTS
CHLORINATED PHENOLS OPP PCP, TeCP,	CARCINOGENIC DYES	ORGANOTINS	ORGANOTINS	
AP & APEO	ALLERGENIC DISPERSE DYES	HEAVY METALS (extractable) CADMIUM & LEAD	CADMIUM COMPOUNDS	
PFOS & PFOA	CHLOROBENZENES + TOLLUENES	PHTHALATES	PHTHALATES	
FLUORINATED GREENHOUSE GASSES	HEAVY METALS (extractable)	PAH's	PVC	
	AP & APEO	↓	↓	
	PFOS & PFOA	IS THE TREATMENT FOR ANTI-CREASING, ANTI-SHRINKAGE OR WATER REPELLENCE?	HAS THE GARMENT BEEN INDUSTRIALLY WASHED ?	
		↓	↓	
		PFOS & PFOA	AP & APEO	
		FORMALDEHYDE		

LEATHER, FAKE LEATHER & PLASTIC PRODUCTS

IS THE PRODUCT MADE OF GENUINE LEATHER OR PARTLY MADE WITH BONDED LEATHER?	IS THE GENUINE LEATHER / BONDED LEATHER DYED?	IS THE PRODUCT MADE OF FAKE LEATHER?	SHOE SOLE MATERIALS	ARE PARTS OF THE PRODUCT MADE OF METAL, OR COATRD?
↓	↓	↓	↓	↓
pH VALUE	AZO DYES	CADMIUM COMPOUNDS	CHLORINATED AND OTHER SOLVENTS	LEAD AND ITS COMPOUNDS
CHLORINATED PHENOLS OPP PCP, TeCP,	CARCINOGENIC DYES	PHTHALATES	POLYCYCLIC AROMATIC HYDROCARBONS PAH's	CADMIUM AMD ITS COMPOUNDS
PFOS & PFOA	HEAVY METALS (extractable)	DIMETHYLFORMAMIDE (DMFa)		NICKEL RELEASE
AP & APEO	AP & APEO	PVC		AP & APEO
CHLORINATED PARAFFINS SCCP's & MCCP's		↓		
CHROMIUM VI		IS THE FAKE LEATHER DYED?		
DIMETHYLFUMARATE (DMFu)		↓		
FLUORINATED GREENHOUSE GASSES		AZO DYES		

TRIMMINGS

ARE (PARTS OF) THE TRIMMINGS MADE OF FABRIC?	ARE (PARTS OF) THE TRIMMINGS MADE OF OF PLASTIC OR COATED WITH PLASTIC?	ARE (PARTS OF) THE TRIMMINGS MADE OF METAL?	ARE (PARTS OF) THE TRIMMINGS, COATED OR PLATED?	ARE (PARTS OF) THE TRIMMINGS MADE OF LEATHER?	ARE (PARTS OF) THE TRIMMINGS MADE OF FAKE LEATHER?
↓	↓	↓	↓	↓	↓
AZO DYES	CADMIUM COMPOUNDS	NICKEL RELEASE	CADMIUM COMPOUNDS	AZO DYES	PVC
CARCINOGENIC DYES	LEAD COMPOUNDS	CADMIUM COMPOUNDS	LEAD COMPOUNDS	CHROMIUM VI	PHTHALATES
ALLERGENIC DISPERSE DYES (MAN MADE FIBRES ONLY)	PVC	LEAD COMPOUNDS	AP & APEO	CHLORINATED PHENOLS PCP, TeCP, OPP	CADMIUM COMPOUNDS
CHLORINATED ORGANIC CARRIERS	PHTHALATES			DIMETHYLFUMARATE (DMFu)	DIMETHYLFORMAMIDE (DMFa)
AP & APEO	CHLORINATED PARAFFINS SSCP's & MCCP's			AP & APEO	AP & APEO

PRINTS

WATERBASE	PIGMENT	FLOCK	RUBBER	PLASTISOL	HIGH DENSITY
↓	↓	↓	↓	↓	↓
AZO DYES	AZO DYES	AZO DYES	AZO DYES	AZO DYES	AZO DYES
AP & APEO	HEAVY METAL EXTRACTABLE	DISPERSE DYES	PHTHALATES	PHTHALATES	AP & APEO
	AP & APEO	FORMALDEHYDE	ORGANOTIN	ORGANOTIN	
		AP & APEO	PVC	PVC	
			AP & APEO	AP & APEO	

DISCHARGE	PUFF	Injection Molded HD/ Silicon HD print OIL BASE	
AZO DYES	AZO DYES	AZO DYES	
FORMALDEHYDE	PHTHALATES	PHTHALATES	
AP & APEO	ORGANOTIN	ORGANOTIN	
	AP & APEO	AP & APEO	

G-STAR RAW
EXPLANATION OF SUBSTANCES

VERSION 1.3 - NOVEMBER 2014

EXPLANATION ON THE ACTION OF SUBSTANCES

ASBESTOS	is a naturally occurring group of fibrous silicate minerals. These thin, long, and flexible fibers can be used in textiles. Asbestos fibers are strong, durable and fire resistant. Asbestos fibres are carcinogenic. It is unlikely that they are found in current textiles except for fire-fighting clothing.
CHLOROBENZENES AND CHLOROTOLUENES	are used in batch dyeing of synthetic fibres, particularly polyester fibres, to promote the absorption and diffusion of disperse dyes into the fibre at relative low temperatures. Carriers are important for dyeing blends of wool and polyester as wool cannot be dyed at higher temperatures than boiling. There is a risk that the carriers will remain on the textile material or partially evaporate during subsequent processes. Most of these carriers are toxic to humans and aquatic organisms, and some are even carcinogenic.
CHLORINATED PARAFFINS	are polychlorinated alkanes and they are divided into three categories depending on the length of the carbon chain, short (C10-C13), medium (C14-C17), and long (C20-C30). Short chain chlorinated paraffins are used as flame retardants for plastics. They are also used as a plasticizer in rubber, paints, adhesives and fat liquoring agents in leather processing. Short Chain Chlorinated Paraffins are classified as dangerous to the environment because they are very toxic to aquatic organisms, and may cause long-term adverse effects in the aquatic environment.
ALLERGENIC DISPERSE DYES	are generally water-insoluble colourants that are mainly used for dyeing polyester, nylon and cellulose acetate. Some disperse dyes have an allergenic (sensitizing) potential to the human skin and can be considered as a possible threat to health, especially if the dyes exhibit poor colour fastness to perspiration fastness.
AZO DYES	which by reductive cleavage may release one or more aromatic arylamines incorporate one or several azo groups (N=N) bound with aromatic compounds. Thousands of azo dyes exist, however, only those which can degrade to form the listed amines are considered to be carcinogenic and are therefore restricted in textiles, leather, apparel and toys.
CARCINOGENIC DYES	From the listed dyestuffs it is proven that they are carcinogenic.
DYES WITH ENVIRONMENTAL PROBLEMS	It has been assessed that this blue colourant harms the environment as it has a high aquatic toxicity, is not easily degradable and reaches the environment via waste water.
BROMINATED AND CHLORINATED FLAME RETARDENTS	are chemical compounds that can be incorporated into textiles or applied by sprays to prevent burning. Brominated flame retardants are used in a wide range of products like automobiles, electronics and textiles because of their stability and heat resistance. Some flame retardants are as toxic as PCB's and DDT and are suspected to be carcinogenic. They persist once they enter the environment and food chain, and are likely to pass up the food chain.
FORMALDEHYDE	is a volatile organic compound whose chemical properties make it suitable to be used for crosslinking, anti-creasing, anti-shrinking, water repellence finishing etc. to fabrics. It can be mixed with phenol and urea to form polymeric resins. In textiles and apparel, formaldehyde may be found in stiffened and permanent pressed fabric. Formaldehyde is a toxic chemical which can induce irritation to mucous membrane and is suspected to cause cancer.
HEAVY METALS (GENERAL)	are found in dyestuffs and used as dye-fixing agents. They also occur in natural fibres like cotton. 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 cancers.
ANTIMONY	is used in flame-proofing, paints, ceramics, enamels, a wide variety of alloys, electronics, and rubber. The flame-retardant applications can include children's clothing, toys, aircraft and automobile seat covers.
ARSENIC	is a notoriously poisonous metalloid. The toxicity of arsenic to insects, bacteria and fungi makes it an ideal component for the preservation of wood.
CADMIUM	is a naturally occurring metal. In textiles and apparels, cadmium is usually used as pigments, coatings, stabilizers in plastics, dyes, paints, inks and metal accessories. Cadmium is also a well known stabilizer for the manufacturing of polymers like PVC. Cadmium and its derivatives are suspected to be carcinogenic.
NICKEL	Nickel is metal often combined with other metals to create alloys with increased hardness and resistance to corrosion. In textiles and apparel, nickel is mainly found in accessories for textiles and clothing, paints, inks, trims, plastics, and metal components. Nickel can cause extreme allergies.
CHROMIUM VI	In textiles and apparels, Chromium VI is usually associated with chrome tanned leather. Chromium VI can cause skin irritation and is considered to be carcinogenic.
COBALT	is a hard, lustrous, grey metal. Cobalt compounds have been used for centuries to impart a rich blue color to glass, glazes, and ceramics. After nickel and chromium, cobalt is a major cause of contact dermatitis. At higher levels of exposure cobalt shows mutagenic and carcinogenic effects
COPPER	is a metal with very high thermal and electrical conductivity. Copper is an essential trace nutrient to all high plant and animal life. In animals, including humans it is found primarily in the bloodstream, as a cofactor in various enzymes and in copper-based pigments. However, in sufficient amounts, copper can be poisonous and even fatal to organisms.
LEAD	is a soft, metal, also considered to be one of the heavy metals. Lead is a poisonous metal that can damage nervous connections (especially in young children) and cause blood and brain disorders. In textiles and apparel, lead can be found in plastics, paints, inks, pigments, and metal components.
MERCURY	also called quicksilver is a heavy metal. Mercury is liquid at or near room temperature and pressure. Mercury exposure at high levels can harm the brain, heart, kidneys, lungs and immune system.
ISOCYANATES	Isocyanates are widely used in the manufacture of flexible and rigid foams, fibres, coatings, elastomers and polyurethane products. Isocyanates create a strong and unpleasant odour.
ORGANOTIN COMPOUNDS	are a class of chemicals combining tin and organics such as butyl and phenyl groups. Organotin are predominantly found in the environment as antifoulants in marine paints, but they can also be used as biocides (antibacterials), and/or heat stabilizers in plastics. In textiles and apparel, organotins may be used in plastics, inks, paints, and heat transfer material. It is also used to prevent unpleasant odours.
CHLOROPHENOLS	are polychlorinated compounds used as a preservative to wood, leather, and textiles. PCP and TeCP have been used as an antifungal in wood products, textiles, and leather. PCP and TeCP are irritants to the skin, eyes and mouth and can cause harmful effects to the liver, kidneys, blood and lungs and are probable human carcinogens.
PERFLUORINATED CHEMICALS	are organofluorine compounds and are often used as surfactants. Like other fluorocarbons it repels water. PFOS is the main ingredient in many stain repellent finishes. Also used as: binder in non-woven fabrics to enhance dyeing; wetting agents to improve coverage and penetration of substances; achieve finish-on-yarn uniformity; water resistance; oil resistant coatings on textiles, leather, and other materials. These chemicals are persistent, bioaccumulative and poisonous to mammals.

EXPLANATION ON THE ACTION OF SUBSTANCES

PESTICIDES	pesticides are substances or mixtures of substances used to kill a pest. A pesticide may be a chemical substance, biological agent (such as a virus or bacteria), antimicrobial, disinfectant or device used against any pest. Although there are benefits to the use of pesticides, there are also drawbacks, such as potential toxicity to humans and animals. In textiles and apparel, these pesticides may be found in natural fibres, primarily cotton.
PHTHALATES	are a class of organic compounds added to plastics to increase flexibility. In textiles and apparel, phthalates can be associated with flexible plastic components, trims, screen and plastisol prints. Phthalates are reprotoxic and can cause birth defects and changes in hormone levels.
DIMETHYL FUMARATE	is used by producers as a biocide to kill moulds that may cause furniture or shoe leather to deteriorate during storage and transportation in a humid climate. Dimethyl fumarate (DMF) is a fungicide that manufacturers use for maritime transport and the storage of consumer goods. DMF can cause acute dermatitis, eczema, and general fatigue to the persons who have been in contact with this substance.
ALKYLPHENOLS (AP) AND ALKYLPHENOL ETHOXYLATES (APEO)	NPEs/OPEs are included in the group of non-ionic surfactants called alkyl phenol ethoxylates (APEOs). NPEs and OPEs can degrade to NP and OP respectively. APEOs are used in detergents, scouring agents, wetting agents, softeners, emulsifier/dispersing agents for dyes and prints and as impregnating agents in leather tanning. APEO is used in de-greasing, finishing etc. In silk production for de-gumming. APEO could also be present in dyes and pigment preparations. Polyester padding and down/feather fillings are risky for APEO. These chemicals are liable to be toxic, persistent and to bioaccumulate.
BIOCIDES	are biologically active substances, and their toxic and biocidal nature enables them to kill or harm living things. Since biocides by nature are used to have detrimental effects on biological organisms, they are at the same time a serious threat to living organisms that were not intended to be controlled. Biocides have adverse effects on the nervous system when entering into the human body. They may irritate eyes, skin, and the respiratory system.
DI-METHYL FORMAMIDE	The primary use of dimethyl formamide is as a solvent with low evaporation rate. Dimethyl formamide is used in the production of acrylic and aramid fibers and plastics. DMF has been linked to cancer in humans, and it is thought to cause birth defects. In some sectors of industry women are banned from working with DMF.
DIOXINS AND FURANS	Dioxins are made up of 75 polychlorinated compounds called chlorinated dibenzo-p-dioxins. Each dioxin has a different level of toxicity based on its structure and tissue absorption qualities. Furans are also polychlorinated compounds (135 different furans exist). Dioxins and furans are structurally and toxically similar. Dioxins/furans are common by-products of incomplete combustion (burning) of organics in a chlorine rich environment and are often associated with the production of pesticides, PVC, and other similar chlorinated chemicals. It is unlikely that dioxin and furan legislation will apply to apparel and textiles.
FLUORINATED GREENHOUSE GASES	Fluorocarbons are mainly used as substitutes for CFCs (Chlorofluorocarbons) and HCFCs (Hydro fluorocarbons), both of which are ozone depleting substances that the 1987 Montreal Protocol has progressively phased out of production. Fluorocarbons are mostly used as refrigerants in refrigerators and air-conditioners and as propellants in industrial aerosols. Other applications include foam-blowing, solvent cleaning and textile coating. Textiles coated with fluorocarbons provide good resistance to weathering, UV light aging, chemical and soil resistance. Treated textiles also give good water-proof and anti-pilling effect. Coated textiles.
POLYCHLORINATED BIPHENYLS (PCB's) and POLYCHLORINATED TERPHENYLS (PCT's)	are persistent organic pollutants and have entered the environment through both use and disposal. Polychlorinated biphenyls commonly known as PCBs are man made chemicals. These chlorinated oils have a low degree of reactivity. They are not flammable, have high electrical resistance, good insulating properties and are very stable even when exposed to heat and pressure. Uses for PCBs quickly expanded to include hydraulic fluids, casting wax, plasticizers, pigments, adhesives, fire-retardants; vapour suppressants to extend the kill-life of insecticides; coatings to render fabric flame-proof, rot-proof and water-repellent, lacquers, varnishes and paints.
POLYCYCLIC AROMATIC HYDROCARBONS (PAH'S)	are one of the most widespread organic pollutants. In addition to their presence in fossil fuels they are also formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense PAH contaminations have been found in rubber but also in various plastics.
POLYVINYLCHLORIDE (PVC)	is a widely used thermoplastic polymer. It can be made softer and more flexible by the addition of plasticizers, the most widely-used being phthalates. In this form, it is used in clothing and upholstery. It is commonly used in coats, jackets, aprons and bags. The global phase-out of PVC is advocated because it is claimed that dioxin is produced as a byproduct of vinyl chloride manufacture and from incineration of waste PVC in domestic garbage.
VOLATILE ORGANICS (VOC's)	are organic chemical compounds that vaporize under normal conditions and enter the atmosphere. Common artificial VOCs include thinners and dry cleaning solvents.
pH VALUE	pH is a measure of the acidity or basicity of a solution. A solution whose pH is 7 is said to be neutral, which means that it is neither acidic nor basic. pH values that do not fall within the specified limits can cause skin irritation.

EXPLANATION OF ABBREVIATIONS

ASE	Accelerated Solvent Extraction
CAS	Chemical Abstract Service Number
C.I.	Colour Index
C&L	Classification and Labelling
DIN	Standard edited by the Deutsches Institut für Normung (German Institute for Standardization)
EC	European Commission
ECHA	European Chemical Agency
EEA	European Economic Area
EEC	European Economic Community
EN	European Standard edited by the European Committee for Standardization
EPA	Environmental Protection Agency (USA)
EU	European Union
GC	Gaschromatography: a technique for the qualitative or quantitative separation of the components of mixtures of compounds; characterised by the use of the mobile phase gas moving relative to a stationary phase (liquid or solid).
GC-ECD	Gaschromatography, Electron Capture Detector
HPLC	High Performance Liquid Chromatography
IR	Infrared Spectrometry
ISO	International Standard edited by the International Organization for Standardization
ISO/TS	Technical Specification: a normative document representing the technical consensus within an ISO committee
KOH	Potassium hydroxide

LC-MS	Liquid chromatography-mass spectrometry (LC-MS) is an analytical chemistry technique that combines the physical separation capabilities of liquid chromatography with the mass analysis capabilities of mass spectrometry.
LFGB	Lebensmittel-, Bedarfsgegenstände-, und Futtermittelgesetzbuch
mg/kg	milligram per kilogram, see also ppm
mg/l	milligram per litre
µg	microgram
MS	Mass Spectrometry: an analytical technique that measures the mass / charge ratio of the ions formed when a molecule or atom is ionized, vaporized and introduced into a vacuum
NGO	Non Governmental Organisation
n.d.	not detectable
PBT	Persistent, Bioaccumulative, Toxic
ppm	Parts Per Million: A unit describing concentrations of chemical substances. 1 ppm can also be notated as 1 milligram per kilogram (mg/kg) or 1µg/g (microgram per gram).
prEN	Draft European standard
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
SNV	Schweizerische Normen-Vereinigung (Swiss Association for Standardization)
SVHC	Substances of Very High Concern
TLC	Thin Layer Chromatography is a chromatography technique used to separate chemical compounds
VOC	Volatile Organic Compounds
vPvB	Very Persistent, very Bioaccumulative



Information provided in this document is valid as of November 2014. Changes, modifications and/or actualizations will be notified from time to time, and will make part of this list as of such date.

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