

GREEN BOOK

Eco Requirements for Apparel/Equipment/Footwear

Restricted Harmful Substances and Chemical Management

Version August 2020

JACK WOLFSKIN Restricted Substances List (RSL)

Restrictions on harmful substances in Apparel, Footwear and Equipment products:

RESTRICTED SUBSTANCES	APPAREL & FOOTWEAR & EQUIPMENT				TEST METHODS
	CAS - No.	CATEGORY I:	CATEGORY II:	CATEGORY III:	
		Materials used for baby and children's products Apparel: ≤ size 104 Footwear: all kids' sizes	Materials with skin contact (with accessible surfaces)	Materials without skin contact (fully covered materials; e.g. padding, interlining)	
		LIMIT VALUES (for every single substance unless specified otherwise)			
GB-01 Arylamines (including corresponding salts; as substance from Azo colorants which, by reductive cleavage of one or more Azo groups, may release one or more of the aromatic amines)	please refer to Appendix		usage ban (20 mg/kg)		Textile: (with and without extraction): LFGB §64, BVL B82.02-2 & LFGB §64, BVL B82.02-4 (EN 14362-1) Leather: LFGB §64, BVL B82.02-3 (EN ISO 17234-1) 4-Aminoazobenzene: LFGB §64, BVL B82.02-15 (textile: EN 14362-3), LFGB §64, BVL B82.02-9 (leather: DIN EN ISO 17234-2)
GB-02 Allergenic dyestuffs	please refer to Appendix		usage ban (20 mg/kg)		
GB-03 Carcinogenic dyestuffs	please refer to Appendix		usage ban (20 mg/kg)		BVL B82.02-10 (DIN 54231)
GB-04 Other banned dyestuffs	please refer to Appendix		usage ban (20 mg/kg)		
GB-05 Alkylphenols (AP)					
Nonylphenols (NP)	25154-52-3		usage ban (traces 10 mg/kg)		Textile: ISO 18254-1 Leather: ISO 18218-1
Octylphenols (OP)	6472-91-9				
GB-06 Alkylphenoethoxylates (APEO)					
Nonylphenoethoxylates (NPEO)	several		usage ban (traces 100 mg/kg)		Textile: DIN EN ISO 18254-1 Leather: ISO 18218-1
Octylphenoethoxylates (OPEO)	several				
GB-07 Chlorinated phenols					
Pentachlorophenol (PCP), salts, esters and compounds	87-86-5	usage ban (traces 0.05 mg/kg for sum of PCP)	usage ban (traces 0.5 mg/kg for sum of PCP)		
			usage ban (traces 0.5 mg/kg for sum of PCP (leather))		
Tetrachlorophenols (TetraCP), salts and compounds	25167-83-3	usage ban (traces 0.05 mg/kg for sum of TetraCP)	usage ban (traces 0.5 mg/kg for sum of TetraCP)		
			usage ban (traces 0.5 mg/kg for sum of TetraCP (leather))		Extraction with KOH // §64 LFGB B 82.02-8 or DIN EN ISO 17070
Trichlorophenols (TriCP), all isomers	25167-82-2		usage ban (traces 0.5 mg/kg for sum of TriCP)		
Monochlorophenols (MonoCP), all isomers	25167-80-0				
Dichlorophenols (DiCP), all isomers	25167-81-1		usage ban (traces 1 mg/kg sum of MonoCP and DiCP)		
GB-08 Orthophenylphenol (OPP)	90-43-7		50 mg/kg		Extraction with KOH // §64 LFGB B 82.02-8 or DIN EN ISO 17070
GB-09 2,4-Dinitrotoluene	121-14-2		10 mg/kg		Solvent extraction / GC-MS or Multiple Headspace / GC-MS
GB-10 Chlorinated-Benzenes and Toluenes (e.g. carrier, solvent)	please refer to Appendix		usage ban (traces 1 mg/kg)		Extraction with Dichloromethane / GC-MS (DIN 54232)
GB-11 Dimethylfumarate (DMFu)	624-49-7		usage ban (0.1 mg/kg)		Extraction with organic solvent / GC-MS, DIN CEN ISO/TS 16186
GB-12 Formaldehyde	50-00-0	usage ban (16 mg/kg)	75 mg/kg	120 mg/kg	Textile: DIN EN ISO 14184-1 / Japanese Law 112 Leather: DIN EN ISO 17226-1 Paper, cardboard: EN 120

Extractable heavy metals					
GB-13	Antimony (Sb)	7440-36-0	5 mg/kg	10 mg/kg	For textiles: DIN-EN 16711-2 (acidic sweat solution) For leather: ISO 17072-1 (acidic sweat solution)
	Arsenic (As)	7440-38-2	usage ban (0.2 mg/kg)		
	Lead (Pb)	7439-92-1	usage ban (traces 0.2 mg/kg)	usage ban (traces 1 mg/kg)	
	Cadmium (Cd)	7440-43-9	usage ban (traces 0.1 mg/kg)		
	Chromium (Cr)	7440-47-3	usage ban with exception of leather (traces 1 mg/kg)	usage ban with exception of leather (traces 2 mg/kg)	
	Cobalt (Co)	7440-48-4	usage ban (traces 1 mg/kg)	usage ban (traces 4 mg/kg)	
	Copper (Cu)	7440-50-8	25 mg/kg	50 mg/kg	
	Nickel (Ni)	7440-02-0	usage ban (traces 1 mg/kg)	usage ban (traces 4 mg/kg)	
	Mercury (Hg)	7439-97-6	usage ban (traces 0.02 mg/kg)		
	Barium	7440-39-3	100 mg/kg		
GB-14	Nickel release	7440-02-0	0.5 µg/cm ² /week		LFGB §64, BVL B82.02-6 (DIN EN ISO 1811) LFGB §64, BVL B82.02-7 (DIN EN 12472)
GB-15	Chromium (Cr) VI	18540-29-9	usage ban (0.5 mg/kg)		Textile: with reference to DIN EN ISO 17075-1 + 17075-2
			usage ban (3 mg/kg (leather))		Leather: DIN EN ISO 17075-1 + 17075-2
Heavy metals in digested sample					
GB-16	Total Lead (Pb)	7439-92-1	40 mg/kg		For textiles and others: DIN EN 16711-1 For leather: ISO 17072-2
			90 mg/kg (metal)		
	Total Cadmium (Cd)	7440-43-9	40 mg/kg		Lead: in addition Annex XVII to Regulation (EC) No 1907/2006 (REACH), column 2 of entry 63 is valid
			40 mg/kg (metal)		
	Total Arsenic (As)	7440-38-2	100 mg/kg		
	Total Mercury (Hg)	7439-97-6	0.5 mg/kg		Leather: DIN EN ISO 17072-2 Others: DIN EN 16711-1
1000 mg/kg (metal)			GB 28021 Acid digestion/ ICP analysis		
Total Chromium VI (Cr VI)	18540-29-9	1000 mg/kg (metal)		GB 28019 UV spectroscopy	
Organotin compounds					
GB-17	Dibutyltin (DBT)	14488-53-0	usage ban (traces 1 mg/kg)		DIN EN ISO 17353 (Extraction with Ethanol / Derivation with Dimethyl carbamate / GC-MS) Footwear: CEN ISO/TS 16179 (modified)
	Tributyltin (TBT)	36643-28-4	usage ban (0.05 mg/kg)		
	Monobutyltin (MBT)	78763-54-9	usage ban (traces 1 mg/kg)		
	Triphenyltin (TPhT)	668-34-8	usage ban (0.05 mg/kg)		
	Diocetyl tin (DOT)	15231-44-4	usage ban (traces 1 mg/kg)		
	Monooctyltin (MOT)	several	usage ban (traces 2 mg/kg)		
	Tetrabutyltin (TeBT)	1461-25-2	usage ban (0.5 mg/kg)		
	Tetraoctyltin (TeOT)	3590-84-9	usage ban (0.5 mg/kg)		
	Tricyclohexyltin (TricycloHT)	several	usage ban (0.5 mg/kg)		
	Dimethyltin compounds (DMT)	several	usage ban (0.05 mg/kg)		
	Trimethyltin compounds (TMT)	several	usage ban (0.05 mg/kg)		
	Tripropyltin compounds (TPT)	several	usage ban (0.05 mg/kg)		
	Diphenyltin compounds (DPHT)	several	usage ban (traces 2 mg/kg)		
	Monomethyltin compounds (MMT)	several	usage ban (traces 2 mg/kg)		
	Triocetyl tin compounds (TOT)	several	usage ban (0.05 mg/kg)		
	Dipropyltin (DPT)	several	usage ban (traces 1 mg/kg)		
	Monophenyltin (MPHT)	several	usage ban (traces 1 mg/kg)		
Tetraethyltin (TeET)	several	usage ban (traces 1 mg/kg)			

GB-18	Perfluorooctansulfonates (PFOS) <i>(note information page 3)</i>	several	usage ban (1 µg/m ²)		Extraction with Methanol / LC-MS, CEN/TS 15968
	Perfluorooctanoic acid (PFOA) it's salts, esters and related substances <i>(note information page 3)</i>	335-67-1 and others	usage ban (25 ppb)		
GB-19	Short chain chlorinated paraffins C ₁₀ -C ₁₃ (SCCP)	85535-84-8	usage ban (30 mg/kg)		Extraction with organic solvent / GC-MS, DIN EN ISO 18219
			100 mg/kg (leather)		
GB-20	Medium chain chlorinated paraffins C ₁₄ -C ₁₇ (MCCP)	85535-85-9	100 mg/kg (leather)		Extraction with organic solvent / GC-MS, DIN EN ISO 18219
Soluble mineral tanning agents					
GB-21	Aluminium (Al)	91728-14-2	50 mg/kg (for sum of soluble mineral tanning agents)	100 mg/kg (for sum of soluble mineral tanning agents)	Extraction with saliva solution acc. to LFGB §64, BVL B82.10-1 (Cat. I), determination acc. to DIN EN ISO 17294-2 (ICP-MS)
	Chromium (Cr)	7440-47-3			
	Titanium (Ti)	7440-32-6			
	Zirconium (Zi)	7440-99-6			
GB-22	Isocyanates	please refer to Appendix	1 mg/kg (for sum of Isocyanates)		Extraction with DCM and derivatisation with 9-(methylaminomethyl)anthracene / HPLC with reference to EN 13130-8
Polyaromatic hydrocarbons (PAHs)					
GB-23	Polyaromatic hydrocarbons (PAHs)	-	usage ban (traces 10 mg/kg for sum of 18 PAHs)		According to AfPS GS 2014:01 PAH, extraction with Toluene, determination with GC-MS
	Benzo(a)pyrene	50-32-8	usage ban (traces 0.2 mg/kg)		
	Benzo(e)pyrene	192-97-2	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Benzo(a)anthracene	56-55-3	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Chrysene	218-01-9	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Benzo(b)fluoroanthene	205-99-2	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Benzo(j)fluoroanthene	205-82-3	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Benzo(k)fluoroanthene	207-08-9	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Dibenzo(a,h)anthracene	53-70-3	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
	Acenaphthene	83-32-9	usage ban (traces 0.5 mg/kg)	usage ban (traces 1 mg/kg)	
Polyaromatic hydrocarbons (PAHs)					
GB-23	Polyaromatic hydrocarbons (PAHs)	-	usage ban (traces 10 mg/kg for sum of 18 PAHs)		According to AfPS GS 2014:01 PAH, extraction with Toluene, determination with GC-MS
	Acenaphthylene	208-96-8	usage ban (traces 10 mg/kg for sum of 18 PAHs)		
	Antracene	120-12-7			
	Benzo(ghi)perylene	191-24-2			
	Fluoranthene	206-44-0			
	Fluorene	86-73-7			
	Indeno(1,2,3-cd)pyrene	193-39-5			
	Naphthalene	91-20-3			
	Phenanthrene	85-01-8			
Pyrene	129-00-0				
GB-24	Phthalates	please refer to Appendix	usage ban (traces 50 mg/kg - sum of all Phthalates 500 mg/kg)		DIN EN ISO 14389
GB-25	Polyvinylchloride (PVC)	9002-86-2	usage ban		ATR-FT-IR spectroscopy
GB-26	Pesticides (incl. PCP / TetraCP)	please refer to Appendix	usage ban (traces 0.5 mg/kg for sum of pesticides)		Extraction with organic solvent / GC-MS
GB-27	Biocide finish (In case biocide is intentionally used as antimicrobial treatment please refer to note on page 3)	-	usage ban		Extraction with organic solvent / GC-MS
GB-28	Flame retardant finish	please refer to Appendix	usage ban		ISO 17881-1 for brominated flame retardants ISO 17881-2 for phosphorus flame retardants

GB-29	Nitrosamines (as substance and as reaction product from secondary amines e.g. in elastomers or rubbers)	please refer to Appendix	usage ban (0.5 mg/kg)		GB/T 24153 or prEN 19577
			4.0 – 7.5	4.0 – 9.0	
GB-30	pH – value	-	3.5 – 7.5 (leather)		Textile: DIN EN ISO 3071 Leather: DIN EN ISO 4045
	Solvents / Volatile organic compounds (VOC) / Glycols				
	N,N-Dimethylformamide (DMFa)	68-12-2	usage ban (5 mg/kg) 50 mg/kg (solvent coating, laminating and fiber manufacturing)		CEN ISO/TS 16189
N,N-dimethylacetamide (DMAC)	127-19-5	usage ban (5 mg/kg) 10 mg/kg (solvent coating and fiber manufacturing)	50 mg/kg (solvent coating and fiber manufacturing)		
N-Methylpyrrolidone (NMP)	872-50-4	10 mg/kg	100 mg/kg		
N-Ethyl-2-pyrrolidone (NEP)	2687-91-4	10 mg/kg	100 mg/kg		
Solvents / Volatile organic compounds (VOC) / Glycols					
	Toluene	108-88-3	10 mg/kg	50 mg/kg	
	2-Ethoxyethylacetate	111-15-9	usage ban (5 mg/kg)		
	2-Ethoxyethanol (EGEE)	110-80-5	usage ban (5 mg/kg)		
	2-Methoxyethanol (EGME)	109-86-4	usage ban (5 mg/kg)		
	Trichloroethylene (TCE)	79-01-6	usage ban (5 mg/kg)		
	Formamide	75-12-7	50 mg/kg	100 mg/kg	
	Styrene	100-42-5	10 mg/kg		
	Vinylcyclohexene	100-40-3	1 mg/kg		
	Butadiene	106-99-0	1 mg/kg		
	Vinylchloride	75-01-4	0.1 mg/kg		
GB-31	Dichloromethane	75-09-2	usage ban (5 mg/kg)		
	Trichloromethane (chloroform)	67-66-3	usage ban (5 mg/kg)		
	Tetrachloromethane	56-23-5	usage ban (0.1 mg/kg)		
	1,1,1-Trichloroethane	71-55-6	usage ban (0.1 mg/kg)		
	1,1,2-Trichloroethane	79-00-5	usage ban (1 mg/kg)		
	1,1-dichloroethane	75-35-4	10 mg/kg		
	1,2-dichloroethane (EDC)	107-06-2	usage ban (1 mg/kg)		
	Perchloroethylene (PERC) / Tetrachloroethylene	127-18-4	usage ban (1 mg/kg)		
	Benzene	71-43-2	usage ban (5 mg/kg)		
	Bis(2-methoxyethyl)-ether	111-96-6	usage ban (5mg/kg)		
	Ethylene glycol dimethyl ether	110-71-4	usage ban (5mg/kg)		
	2-Methoxyethylacetate	110-49-6	usage ban (5mg/kg)		
2-Methoxy-1-propanol	1589-47-5	usage ban (5mg/kg)			
Triethylene glycol dimethyl ether	112-49-2	usage ban (5mg/kg)			
	Cresol, all isomers	1319-77-3 108-39-4 95-48-7 106-44-5	usage ban (10mg/kg)		Extraction with KOH // §64 LFGB B 82.02-8 or DIN EN ISO 17070
	2-Phenyl-2-propanol	617-94-7	1 mg/kg	10 mg/kg	
	Acetophenone	98-86-2	20 mg/kg		
	Phenol	108-95-2	100 mg/kg		
	Xylene, all isomers	1330-20-7 108-38-3 95-47-6 106-42-3	usage ban (traces 1 mg/kg)		Solvent extraction / GC-MS or Multiple Headspace / GC-MS
			1 mg/kg (non-textiles)	10 mg/kg (non-textiles)	

GB-32	Fluorinated Greenhouse Gases (SF6, PFCs, HFCs)	please refer to Appendix	usage ban (0.1 mg/kg)		Solvent extraction / GC-MS or Multiple Headspace / GC-MS
GB-33	Quinoline	91-22-5	50 mg/kg		Extraction with Methanol or THF // HPLC-MS/MS or HPLCDAD
Process preservative agents					
GB-34	2-Phenylphenol / ortho-Phenylphenol (OPP)	90-43-7	250 mg/kg	750 mg/kg	ISO 13365
	4-Chloro-3-methylphenol (CMC/CMK)	59-50-7	150 mg/kg	300 mg/kg	
	2-(Thiocyanomethylthio)benzothiazol (TCMBT)	21564-17-0	250 mg/kg	500 mg/kg	
	2-Octylisothiazol (OIT)	26530-20-1	50 mg/kg	100 mg/kg	
GB-35	Aniline (free)	62-53-3	Usage ban (traces 30 mg/kg)		Extraction with MeOH // LC-MS
UV-Stabilizers					
GB-36	UV 320 (2-Benzotriazol-2-yl-4,6-di-tert-butylphenol)	3846-71-7	Usage ban (traces 1000 mg/kg)		Extraction with Hexane/Dichloroethane // GC-MS
	UV 327 (2,4-Di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol)	3864-99-1			
	UV 328 (2-(2H-benzotriazol-2-yl)-4,6-ditertpentyl-phenol)	25973-55-1			
	UV 350 (2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol)	36437-37-3			
Heavy metals in packaging					
GB-37	Cadmium (Cd)	7440-43-9	100 mg/kg (for sum of heavy metals)		Microwave digestion followed by ICP analysis (Chromium VI only: DIN EN ISO 17075)
	Chromium (Cr) VI	7439-92-1			
	Lead (Pb)	7440-43-9			
	Mercury (Hg)	7439-97-6			
GB-38	Cobalt dichloride (in blue color-indicator)	7646-79-9 7791-13-1	usage ban		Determination of cobalt followed by ICP/MS, Determination of chloride by ion chromatography
GB-39	REACH: All substances that are listed in the REACH Candidate List of Substances of Very High Concern for Authorisation (Annex XIV), unless limit value is specified otherwise in this document.	-	0.1 mass %		Various test methods depending on substance. Note: "once an article always an article"- The threshold of 0,1 % is calculated on basis of each single article the product consists of.

Restrictions on harmful substances for materials with food or mouth contact:

RESTRICTED SUBSTANCES		CAS - No.	LIMIT VALUES	TEST METHODS
GB-40	Sensory tests - for drinking vessels			
	Change of taste through direct contact, acid and aqueous food – still water	-	scale: 2.5	ASU L 0090-7 and DIN 10955
	Change of odour through direct contact, acids and aqueous food – still water	-	scale: 2.5	
	Change of taste through direct contact, fatty food (aqueous) – coconut oil	-	scale: 2.5	
Change of odour through direct contact, fatty food (aqueous) – coconut oil	-	scale: 2.5		
GB-41	Overall migration			Limit value of <u>third</u> migrate:
	3% acetic acid in aqueous solution (simulanz B)	-	10 mg/dm ²	ASU 80.30 part 1-3 N 1186, Commission Regulation (EU) No 10/2011
	95% ethanol and isooctane (simulanz D2)	-	10 mg/dm ²	OM2 (3x10 d bei 40°C) ResAP(2004)5 on Silicones
	50% ethanol (simulanz D1)	-	10 mg/dm ²	Enamel - Netherlands: Commodities Act (Packaging and Consumer Articles) Netherlands; Food simulants, contact time, contact temperature and limits according Commodities Act.
GB-42	Total metal content			
	Chromium (Cr)	7440-47-3	10 mg/kg	Microwave digestion followed by ICP-MS according to DIN EN ISO 17294-2
	Vanadium (V)	7440-62-2	20 mg/kg	
	Zirconium (Zr)	7440-67-7	100 mg/kg	
	Hafnium (Hf)	7440-58-6	100 mg/kg	
	Cadmium (Cd)	7440-43-9	40 mg/kg	
	Lead (Pb)	7439-92-1	40 mg/kg	
GB-43	Metals, specific migration			
	Aluminium (Al)	7429-90-5	1 mg/kg food or food simulant	Commission Regulation (EU) No 10/2011 incl. Amendment (EU) 2017/752. Food simulants, contact time and contact temperature according Commission Regulation.
	Barium (Ba)	7440-39-3	1 mg/kg food or food simulant	
	Cobalt (Co)	7440-48-4	0,05 mg/kg food or food simulant	
	Copper (Cu)	7440-50-8	5 mg/kg food or food simulant	
	Iron (Fe)	7439-89-6	48 mg/kg food or food simulant	
	Lithium (Li)	7439-93-2	0,6 mg/kg food or food simulant	
	Manganese (Mn)	7439-96-5	0,6 mg/kg food or food simulant	
	Nickel (Ni)	7440-02-0	0,02 mg/kg food or food simulant	
Zinc (Zn)	7440-66-6	5 mg/kg food or food simulant		
GB-44	Polyaromatic hydrocarbons (PAHs)			
	Sum of PAHs	please refer to Appendix	0.2 mg/kg	According to AfPS GS 2014:01 PAH, extraction with Toluene, determination with GC-MS
	Benzo(a)pyren	50-32-8	0.2 mg/kg	
Benzo (g,h,i) perylene	191-24-2	0.2 mg/kg		

GB-45	Polyaromatic hydrocarbons (PAHs), specific migration considering worst-case conditions	please refer to Appendix	0.01 mg/kg	(1) DIN EN 13130-1 migration (2) Commission Regulation (EU) No. 10/2011 (non-intentionally added substance); Food simulants, Contact time and Contact temperature according Commission Regulation.
GB-46	Phthalates, specific migration		Limit value of <u>third</u> migrate:	
	DBP	84-74-2	0.3 mg/kg	Commission Regulation (EU) No. 10/2011 Food simulants, Contact time and Contact temperature according Commission Regulation.
	BBP	85-68-7	30 mg/kg	
	DEHP	117-81-7	1.5 mg/kg	
	DINP	28553-12-0	9 mg/kg	
DIDP	26761-40-0	9 mg/kg		
GB-47	Phthalates, content (%)			
	DBP	84-74-2	0.05%	Commission Regulation (EU) No. 10/2011 Food simulants, Contact time and Contact temperature according Commission Regulation.
	BBP	85-68-7	0.10%	
	DEHP	117-81-7	0.10%	
	DINP	28553-12-0	0.10%	
DIDP	26761-40-0	0.10%		
GB-48	Bisphenol A (BPA)	80-05-7	usage ban (0.05 mg/kg)	Extraction with organic solvent / GC-MS
GB-49	Primary aromatic amines	several	usage ban (traces <0.01 mg/kg food or food simulant)	Commission Regulation (EU) No. 10/2011 Food simulants, Contact time and Contact temperature according Commission Regulation. Plastic materials and articles shall not release primary aromatic amines, excluding those appearing in Table 1 of Annex I of Commission Regulation (EU) No. 10/2011.
GB-50	ANNEX I - Substances: Union list of authorised monomers, other starting substances, macromolecules obtained from microbial fermentation, additives and polymer production aids	-	see ANNEX I - 10/2011	Commission Regulation (EU) No. 10/2011
GB-51	Extractable heavy metals - migration with 0.5% citric acid		Limit value of <u>third</u> migrate:	
	Aluminium (Al)	7429-90-5	5 mg/kg food	ASU B 80.03-1; 80.03-2; Based on EN 1388 Part1 and "Guideline on metals and alloys" of Resolution CM/Res(2013)9 adopted in June 2013. Non-insulated drinking vessels: cold filled: 24h, 40°C; hot filled: 2h, 70°C; Thermo bottles: 24h, 70°C Result of first migrate plus result of second migrate must be lower than 7x the limit value of third migrate (defined in left column).
	Antimony (Sb)	7440-36-0	0.04 mg/kg food	
	Chromium (Cr)	7440-47-3	0.25 mg/kg food	
	Cobalt (Co)	7440-48-4	0.02 mg/kg food	
	Copper (Cu)	7440-50-8	4 mg/kg food	
	Iron (Fe)	7439-89-6	40 mg/kg food	
	Magnesium (Mg)	7439-95-4	-	
	Manganese (Mn)	7439-96-5	1.8 mg/kg food	
	Molybdenum (Mo)	7439-98-7	0.12 mg/kg food	
	Nickel (Ni)	7440-02-0	0.14 mg/kg food	
	Silver (Ag)	7440-22-4	0.08 mg/kg food	
	Tin (Sn)	7440-31-5	100 mg/kg food	
	Titanium (Ti)	7440-32-6	-	
	Vanadium (V)	7440-62-2	0.01 mg/kg food	
	Zinc (Zn)	7440-66-6	5 mg/kg food	
	Arsenic (As)	7440-38-2	0.002 mg/kg food	
	Barium (Ba)	7440-39-3	1.2 mg/kg food	
	Beryllium (Be)	7440-41-7	0.01 mg/kg food	
Cadmium (Cd)	7440-43-9	0.005 mg/kg food		
Lead (Pb)	7439-92-1	0.01 mg/kg food		
Lithium (Li)	7439-93-2	0.048 mg/kg food		
Mercury (Hg)	7439-97-6	0.003 mg/kg food		
Thallium (Tl)	7440-28-0	0.0001 mg/kg food		
GB-52	Peroxides	several	usage ban	Determination of peroxides, Ph. Eur. Method 2.5.5.
GB-53	Volatile organic matters VOM	-	0.5 % w/w	Gravimetric method, single specification - Depending on use (Germany)/ France and Switzerland 4 hours, 200°C

GB-54	Extractable matters	-	0.5 % w/w			Gravimetric method; Bundesgesundheitsblatt“ 22, 1979, Page 339; „Bundesgesundheitsblatt“ 11, 1979, Page 343; „Bundesgesundheitsblatt“ 12, 1961, Page 189 ff.
	Extractable heavy metals - migration with 4% acetic acid in aqueous solution (AT BRIM)		Limit value of <u>third</u> migrate:			
GB-55	Cadmium (Cd)	7440-43-9	0.2 mg/article (at brim)			Directive 2005/31/EC (amendment of Council Directive 84/500/EEC) EN 1388-2
	Lead (Pb)	7439-92-1	2 mg/article (at brim)			
GB-56	Extractable heavy metals - migration with 4% acetic acid in aqueous solution (INSIDE SURFACE)	-	Limit value of <u>first</u> migrate:			
			Category 1: Articles which cannot be filled and articles which can be filled, the internal depth of which, measured from the lowest point to the horizontal plane passing through the upper rim, does not exceed 25 mm	Category 2: All other articles which can be filled	Category 3: Cooking ware; packaging and storage vessels having a capacity of more than three litres	
	Cadmium (Cd)	7440-43-9	0,07 mg/dm2	0,3 mg/l	0,1 mg/l	Directive 84/500/EEG
	Lead (Pb)	7439-92-1	0,8 mg/dm2	4,0 mg/l	1,5 mg/l	
GB-57	Extractable heavy metals - migration with 3% acetic acid in aqueous solution	-	Limit value of <u>third</u> migrate:			
	Aluminium (Al)	7429-90-5	5000 µg/l			DIN EN 4351:2018
	Antimony (Sb)	7440-36-0	40 µg/l			
	Chromium (Cr)	7440-47-3	250 µg/l			
	Cobalt (Co)	7440-48-4	100 µg/l			
	Copper (Cu)	7440-50-8	4000 µg/l			
	Manganese (Mn)	7439-96-5	1800 µg/l			
	Molybdenum (Mo)	7439-98-7	120 µg/l			
	Nickel (Ni)	7440-02-0	140 µg/l			
	Silver (Ag)	7440-22-4	80 µg/l			
	Vanadium (V)	7440-62-2	10 µg/l			
	Zinc (Zn)	7440-66-6	5 000 µg/l			
	Arsenic (As)	7440-38-2	2 µg/l			
	Barium (Ba)	7440-39-3	1200 µg/l			
	Cadmium (Cd)	7440-43-9	5 µg/l			
	Lead (Pb)	7439-92-1	10 µg/l			
Lithium (Li)	7439-93-2	480 µg/l				
GB-58	Heavy Metals, extractable in ceramics/enamels		Limit value of <u>third</u> migrate:			
	Arsenic (As)	7440-38-2	0.01 mg/kg			EN 1186 Commodities Act (Packaging and Consumer Articles) Netherlands; Food simulants, contact time and contact temperature according Commodities Act.
	Barium (Ba)	7440-39-3	1 mg/kg			
	Boron (B)	7440-42-8	1 mg/kg			
	Cadmium (Cd)	7440-43-9	0.01 mg/kg			
	Chromium (Cr)	7440-47-3	0.1 mg/kg			
	Cobalt (Co)	7440-48-4	0.05 mg/kg			
	Lithium (Li)	7439-93-2	0.6 mg/kg			
	Lead (Pb)	7439-92-1	0.1 mg/kg			
	Mercury (Hg)	7439-97-6	0.005 mg/kg			
	Rubidium (Rb)	7440-17-7	1 mg/kg			
	Selenium (Se)	7782-49-2	0.01 mg/kg			
	Strontium (Sr)	7440-24-6	1 mg/kg			

Material Fields of Application

The following table shows examples of materials and their field of application for each material category in the testing matrix:

Material category	Type of material	Field of application
Natural fibers	Wool Cotton Linen	Fabrics Tapes Threads
Synthetic fibers	Polyester Polyamide Elastane Polyacrylic	Fabrics Tapes Threads Mesh Fake fur Laces Zipper tapes
Leather	Cowhide Pigskin Suede Split leather	Main material Patch Insole
Bonded Leather (Lefa)	Bonded leather (shredded left over leather from production which is bonded by glue)	Bonded leather with coating, used for inner materials or accessories
Polymers	Rubber Plastics (TPU, POM, Acetal, etc.)	Sole Sealing Patches Stopper Inserts Buckles Buttons Zipper
Foams	Polyurethane foam EVA foam	Upholstery Sole Insole
Metal	Brass Copper	Button Rivet Closure Eyelets Zipper
Coatings (Base material can be out of natural fibers, synthetic fibers, leather, bonded leather (lefa), polymers)	Polyurethane Silicone	Main material Synthetic leather Reflective Toe cap
Prints	Rubber print Pigment print Heat transfer prints	Placement print All over prints (AOP) Reflective prints
Packaging	Paper Polymers	Cartons Paper Polybags Foil Hangtags Sticker
Paper / Cardboard	Paper	Sole material Filling material Stabilization

Restrictions on emission of volatiles from shoe containers

Below restrictions are based on the maximum allowable MAKs¹ (= job concentration levels). The emission of volatiles from shoe containers are measured directly after arrival in Hamburg, Germany (fugitive air measurement).

RESTRICTED SUBSTANCES	CAS-No.	LIMIT VALUES [ml/m ³]	TEST METHOD
N,N-Dimethylformamide (DMFa)	68-12-2	5	Headspace/GC-MS
N,N-dimethylacetamide (DMAC)	27-19-5	10	Headspace/GC-MS
N-Methylpyrrolidone (NMP)	872-50-4	20	Headspace/GC-MS
Toluene	108-88-3	50	Headspace/GC-MS
2-Ethoxyethylacetate	111-15-9	2	Headspace/GC-MS
2-Ethoxyethanol (EGEE)	110-80-5	2	Headspace/GC-MS
2-Methoxyethanol (EGME)	109-86-4	1	Headspace/GC-MS
Trichloroethylene (TCE)	79-01-6	1	Headspace/GC-MS
Formamide	75-12-7	10	Headspace/GC-MS
Styrene	100-42-5	20	Headspace/GC-MS
Vinylcyclohexene	100-40-3	0.1	Headspace/GC-MS
Butadiene	106-99-0	2	Headspace/GC-MS
Vinylchloride	75-01-4	2	Headspace/GC-MS
Dichloromethane	75-09-2	12.5	Headspace/GC-MS
Trichloromethane (chloroform)	67-66-3	0.5	Headspace/GC-MS
Tetrachloromethane	56-23-5	0.5	Headspace/GC-MS
1,1,2-Trichloroethane	79-00-5	10	Headspace/GC-MS
1,1-Dichloroethane	75-34-3	100	Headspace/GC-MS
1,2-Dichloroethane (EDC)	107-06-2	0.02	Headspace/GC-MS
Perchloroethylene (PER)/ Tetrachloroethylene	127-18-4	50	Headspace/GC-MS
Dimethylfumarate (DMFu)	624-49-7	0.1	Headspace/GC-MS
Benzene	71-43-2	0.1	Headspace/GC-MS
1,2-Dibromoethane	106-93-4	0.2	Headspace/GC-MS
Aromatic hydrocarbons (without Benzene)	-	50	Headspace/GC-MS
Chlorinated aromatic Hydrocarbons	-	2	Headspace/GC-MS
Chlorinated phenols	see GB-07	0.1	Headspace/GC-MS
Carbon disulfide (CS ₂)	75-15-0	5	Headspace/GC-MS
Xylene	1330-20-7	100	Headspace/GC-MS
Formaldehyde	50-00-0	0.3	Headspace/GC-MS
4-Phenylcyclohexene	4994-16-5	0.006	Headspace/GC-MS
Methyl bromide	74-83-9	0.5	Headspace/GC-MS
1,2-Dichloropropane	78-87-5	75	Headspace/GC-MS
Chrysaniline (Phosphine)	7803-51-2	0.1	Headspace/GC-MS
2,4-Dichlorophenol	120-83-2	0.1	Headspace/GC-MS
Ethylbenzene	100-41-4	50	Headspace/GC-MS
Cyclohexanone	108-94-1	25	Headspace/GC-MS
Methyl-Ethyl-Ketone	78-93-3	200	Headspace/GC-MS

¹ https://www.dfg.de/en/dfg_profile/statutory_bodies/senate/health_hazards/index.html

CAS - No. Index

GB-01 Arylamines

(including corresponding salts; as substance from Azo colorants which, by reductive cleavage of one or more Azo groups, may release one or more of the aromatic amines)

No.	Chemical Substance	CAS-No. ¹⁾
1	4-Aminobiphenyl	92-67-1
2	Benzidine	92-87-5
3	4-Chloro-o-toluidine	95-69-2
4	2-Naphthylamine	91-59-8
5	o-Aminoazotoluene	97-56-3
6	2-Amino-4-nitrotoluene	99-55-8
7	p-Chloroaniline	106-47-8
8	2,4-Diaminoanisole	615-05-4
9	4,4'-Diaminodiphenylmethane	101-77-9
10	3,3'-Dichlorobenzidine	91-94-1
11	3,3'-Dimethoxybenzidine	119-90-4
12	3,3'-Dimethylbenzidine	119-93-7
13	3,3'-Dimethyl-4,4'-diaminobiphenylmethane	838-88-0
14	p-Cresidine	120-71-8
15	4-Aminoazobenzene	60-09-3
16	4,4'-Methylene-bis-(2-chloroaniline)	101-14-4
17	4,4'-Oxydianiline	101-80-4
18	4,4'-Thiodianiline	139-65-1
19	o-Toluidine	95-53-4
20	2,4-Toluylenediamine	95-80-7
21	2,4,5-Trimethylaniline	137-17-7
22	o-Anisidine (2-Methoxyaniline)	90-04-0
23	2,4-Xylidine (2,4-Dimethylaniline)	95-68-1
24	2,6-Xylidine (2,6-Dimethylaniline)	87-62-7
25	4-Chloro-o-toluidinium chloride	3165-93-3
26	4-Methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate	39156-41-7
27	2-Naphthylammoniumacetate	553-00-4
28	2,4,5-Trimethylaniline hydrochloride	21436-97-5

¹⁾ CAS No. = Chemical Abstract Service Registry Number; a unique numerical identifier to every chemical substance.

GB-02 Allergenic dyestuffs

No.	C.I. Generic Name ²⁾	CAS-No.
1	Disperse Blue 3	2455-46-9 86722-66-9
2	Disperse Blue 7	3179-90-6
3	Disperse Blue 26	3860-63-7
4	Disperse Blue 35	12222-75-2
5	Disperse Blue 102	12222-97-8
6	Disperse Blue 106	12223-01-7
7	Disperse Blue 124	61951-51-7
8	Disperse Brown 1	23355-64-8
9	Disperse Orange 1	2581-69-3
10	Disperse Orange 3	730-40-5
11	Disperse Orange 37 / 59 / 76	13301-61-6 12223-33-5 51811-42-8
12	Disperse Red 1	2872-52-8
13	Disperse Red 11	2872-48-2
14	Disperse Red 17	3179-89-3
15	Disperse Yellow 1	119-15-3
16	Disperse Yellow 9	6373-73-5
17	Disperse Yellow 39	12236-29-2
18	Disperse Yellow 49	54824-37-2

²⁾ C.I. = Color Index (<https://colour-index.com/>)

GB-03 Carcinogenic dyestuffs

No.	C.I. Generic name	CAS-No.
1	Acid Red 26	3761-53-3
2	Basic Red 9	569-61-9
3	Basic Violet 14	632-99-5
4	Basic Violet 3	548-62-9 603-48-5 14426-25-6
5	Direct Black 38	1937-37-7
6	Direct Blue 6	2602-46-2
7	Direct Red 28	573-58-0
8	Disperse Blue 1	2475-45-8
9	Disperse Orange 11	82-28-0
10	Disperse Yellow 3	2832-40-8
11	Pigment Black 25	68186-89-0
12	Pigment Red 104	12656-85-8
13	Pigment Yellow 34	1344-37-2
14	Pigment Yellow 157	68610-24-2
15	Basic Green 4 Malachit green Malachit green chloride Malachit green oxalate	Several 10309-95-2 569-64-2 2437-29-8
16	Direct Brown 95	16071-86-6
17	Direct Blue 15	2429-74-5
18	Acid Red 114	6459-94-5
19	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol (Solvent Violet 8)	561-41-1

GB-04 Other banned dyestuffs

No.	C.I. Generic name	CAS-No.
1	Disperse Orange 149	85136-74-9
2	Disperse Yellow 23	6250-23-3
3	Navy Blue A mixture of: disodium (6-(4-anisidino)-3- sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1- naphtholato)(1-(5-chloro-2-oxidophenylazo)-2-naphtholato)chromate(1-),trisodium bis(6-(4-anisidino)-3-sulfonato-2-(3,5- dinitro-2-oxidophenylazo)-1-naphtholato)chromate(1-) Component 1: CAS-No: 118685-33-9 C39H23ClCrN7O12S.2Na Component 2: C46H30CrN10O20S2.3Na	EC-Number: 405-665-4 Component 1: 118685-33-9 Component 2: Not allocated
4	Basic Blue 26	2580-56-5
5	Direct Yellow 1	6472-91-9
6	Disperse Blue 35B	56524-76-6

GB-10 Chlorinated –Benzenes and Toluenes

No.	Chemical Substance	CAS-No.
1	Monochlorobenzene	108-90-7
2	Dichlorobenzenes, all isomers	95-50-1 541-73-1 106-46-7
3	Trichlorobenzenes, all isomers	87-61-6 120-82-1 108-70-3
4	Tetrachlorobenzenes, all isomers	634-66-2 634-90-2 95-94-3
5	Pentachlorobenzene	608-93-5
6	Hexachlorobenzene	118-74-1
7	Chlorotoluenes, all isomers	25168-05-2
8	Monochlorotoluenes, all isomers	95-49-8 108-41-8 106-43-4 100-44-7
9	Dichlorotoluenes, all isomers	32768-54-0 95-73-8 19398-61-9 118-69-4 95-75-0 25186-47-4
10	Trichlorotoluenes, all isomers	7359-72-0 2077-46-5 6639-30-1 23749-65-7 21472-86-6 98-07-7 56961-86-5
11	Tetrachlorotoluenes, all isomers	875-40-1 2136-89-2 5216-25-1 1006-32-2 1006-31-1
12	Pentachlorotoluene	877-11-2

GB-22 Isocyanates

No.	Chemical Substance	CAS-No.
1	Diphenylmethane diisocyanate (MDI)	101-68-8
2	Hexamethylene diisocyanate (HMDI)	822-06-0
3	Isophorone diisocyanate (IPDI)	4098-71-9
4	Tetramethylxylene diisocyanate (TMXDI)	2778-42-9
5	Toluene diisocyanate (2,4-TDI)	584-84-9
6	Toluene diisocyanate (2,6-TDI)	91-08-7

GB-24 Phthalates

No.	Chemical Substance	CAS-No.
1	Di-iso-nonylphthalate (DINP)	28553-12-0 68515-48-0
2	Di-n-octylphthalate (DNOP)	117-84-0
3	Di(2-ethylhexyl)phthalate (DEHP)	117-81-7
4	Di-iso-decylphthalate (DIDP)	26761-40-0 68515-49-1
5	Butylbenzylphthalate (BBP)	85-68-7
6	Dibutylphthalate (DBP)	84-74-2
7	Di-iso-butylphthalate (DIBP)	84-69-5
8	Di-C ₇₋₁₁ -branched and linear alkyl esters (DHNUP)	68515-42-4
9	Di-C ₆₋₈ -branched alkyl esters (DIHP)	71888-89-6
10	Bis(2-methoxyethyl)phthalate (DMEP)	117-82-8
11	Dimethylphthalate (DMP)	131-11-3
12	Di-n-hexylphthalate (DNHP)	84-75-3
13	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4
14	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0
15	Diisopentylphthalate (DIPP)	605-50-5
16	N-pentyl-isopentyl-phthalate (NPIPP)	776297-69-9
17	Diethyl phthalate (DEP)	84-66-2
18	Dinonyl phthalate (DNP)	84-76-4
19	Di-n-propyl phthalate (DPRP)	131-16-8
20	Di-cyclohexyl phthalate (DHCP)	84-61-7
21	Di-iso-octyl phthalate (DIOP)	27554-26-3
22	Di-n-pentyl phthalate (DnPP)	131-18-0
23	Diisohexyl phthalate	71850-09-4
24	1,2-benzenedicarboxylic acid, diC ₆₋₁₀ -alkylesters	68515-51-5
25	1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters	68648-93-1

GB-26 Pesticides

No.	Chemical Substance	CAS-No.
1	2,4,5-T	93-76-5
2	2,4-D	94-75-7
3	Acetamiprid	135410-20-7 160430-64-8
4	Aldicarb	116-06-3
5	Aldrine	309-00-2
6	Azinophosethyl	2642-71-9
7	Azinophosmethyl	86-50-0
8	Bromophos-ethyl	4824-78-6
9	Captafol	2425-06-1
10	Carbaryl	63-25-2
11	Chlorbenzilate	510-15-6
12	Chlordane	57-74-9
13	Chlordimeform	6164-98-3
14	Chlordecone	143-50-0
15	Chlorfenvinphos	470-90-6
16	Clothianidin	210880-92-5
17	Coumaphos	56-72-4
18	Cyfluthrin	68359-37-5
19	Cyhalothrin	91465-08-6
20	Cypermethrin	52315-07-8
21	DDD	53-19-0 72-54-8
22	DDE	3424-82-6 72-55-9
23	DDT	50-29-3 789-02-6
24	DEF (Tribufos)	78-48-8
25	Deltamethrin	52918-63-5
26	Diazinon	333-41-5
27	Dichlorprop	120-36-2
28	Dicrotophos	141-66-2
29	Dieldrine	60-57-1
30	Dimethoate	60-51-5
31	Dinoseb and salts and acetats	88-85-7 et al.
32	Dinotefuran	165252-70-0
33	Endosulfan, α -	115-29-7
34	Endosulfan, β -	33213-65-9
35	Endrine	72-20-8
36	Esfenvalerate	66230-04-4
37	Fenvalerat	51630-58-1

No.	Chemical Substance	CAS-No.
38	Heptachlor	76-44-8
39	Hexachlorobenzene	118-74-1
40	Hexachlorocyclohexane (HCH), mixed isomers	608-73-1
41	Heptachloroepoxide	1024-57-3
42	Imidachlopid	105827-78-9 138261-41-3
43	Isodrine	456-73-6
44	Kelevan	4234-79-1
45	Kepone	143-50-0
46	Lindane	58-89-9
47	Malathion	121-75-5
48	MCPA	94-74-6
49	MCPB	94-81-5
50	Mecoprop	93-65-2
51	Metamidophos	10265-92-6
52	Methoxychlor	72-43-5
53	Mirex	2385-85-5
54	Monocrotophos	6923-22-4
55	Nitenpyram	150824-47-8
56	Parathion	56-38-2
57	Parathion-methyl	298-00-0
58	Pentachlorophenol (PCP)	87-86-5
59	Permethrin	52645-53-1
60	Perthane	72-56-0
61	Phosdrin/ Mevinphos	7786-34-7
62	Profenophos	41198-08-7
63	Propethamphos	31218-83-4
64	Phosphamidone	13171-21-6
65	Quinalphos	13593-03-8
66	Strobane	8001-50-1
67	Telodrin	297-78-9
68	Tetrachlorophenols (TetraCP)	25167-83-3
69	Thiaclopid	111988-49-9
70	Thiamethoxam	153719-23-4
71	Toxaphene	8001-35-2
72	Trifluraline	1582-09-8
73	Silvex	93-72-1

GB-28 Flame retardant finish

No.	Chemical Substance	CAS-No.
1	Polybrominated biphenyls (PBB)	59536-65-1
2	Tri-(2,3-dibromopropyl)-phosphate (TRIS)	126-72-7
3	Tris-(aziridiny)-phosphin oxide (TEPA)	5455-55-1
4	Pentabromodiphenylether (PentaBDE)	32534-81-9
5	Octabromodiphenylether (OctaBDE)	32536-52-0
6	Decabromodiphenylether (DecaBDE)	1163-19-5
7	Tetrabromodiphenyl ether (TetraBDE)	40088-47-9
8	Hexabromodiphenyl ether (HexaBDE)	36483-60-0
9	Heptabromodiphenyl ether (HeptaBDE)	68928-80-3
10	Hexabromocyclododecane (HBCDD)	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8
11	Tris-(2-chloroethyl)phosphate (TCEP)	115-96-8
12	Bis-(2,3-dibromopropyl)phosphate	5412-25-9
13	Tetrabromobisphenol A (TBBPA)	79-94-7
14	Short chain chlorinated paraffins C10-C13 (SCCP)	85535-84-8
15	Medium chain chlorinated paraffins C14-C17 (MCCP)	85535-85-9
16	Tris-(2-chloro-1-methylethyl)phosphate (TCPP)	13674-84-5
17	Tris-[2-chloro-1-(chloromethyl)ethyl] phosphate (TDCP)	13674-87-8
18	Trixylyl phosphate	25155-23-1
19	2,2-Bis(bromomethyl)-1,3-propanediol	3296-90-0
20	Tetrabromobisphenol A bis(2,3-dibromopropylether)	21850-44-2
21	Trimethyl phosphate	512-56-1
22	Tri-o-cresyl phosphate	78-30-8
23	Nonabromodiphenylether (NonaBDE)	63936-56-1
24	Boric Acid	10043-35-3 11113-50-1
25	Diboron trioxide	1303-86-2
26	Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3
27	Disodium octaborate / Dinatriumoctaborat	12008-41-2
28	Monobromodiphenylether	several
29	Tricresylphosphate	1330-78-5

GB-29 Nitrosamines

No.	Chemical Substance	CAS-No.
1	N-Nitroso-di-n-butylamine	924-16-3
2	N-Nitroso-di-ethanolamine	1116-54-7
3	N-Nitroso-di-ethylamine	55-18-5
4	N-Nitroso-di-isopropylamine	601-77-4
5	N-Nitroso-di-methylamine	62-75-9
6	N-Nitroso-di-n-propylamine	621-64-7
7	N-Nitroso-ethylphenylamine	612-64-6
8	N-Nitroso-methylethylamine	10595-95-6
9	N-Nitroso-methylphenylamine	614-00-6
10	N-Nitroso-morpholine	59-89-2
11	N-Nitroso-piperidine	100-75-4
12	N-Nitroso-pyrrolidine	930-55-2

GB-32 Fluorinated Greenhouse Gases (SF6, PFCs, HFCs)

No.	Chemical Substance	CAS-No.
1	Sulphur hexafluoride (SF6)	2551-62-4
2	Perfluoromethane (CF4)	75-73-0
3	Perfluoroethane (C2F6)	76-16-4
4	Perfluoropropane (C3F8)	76-19-7
5	Perfluorobutane (C4F10)	355-25-9
6	Perfluoropentane (C5F12)	678-26-2
7	Perfluorohexane (C6F14)	355-42-0
8	Perfluorocyclobutane (c-C4F8)	115-25-3
9	HFC-23 - CHF3	75-46-7
10	HFC-32 - CH2F2	75-10-5
11	HFC-41 - CH3F	593-53-3
12	HFC-43-10mee - C5H2F10	138495-42-8
13	HFC-125 - C2HF5	354-33-6
14	HFC-134 - C2H2F4	359-35-3
15	HFC-134a - CH2FCF3	811-97-2
16	HFC-152a - C2H4F2	75-37-6
17	HFC-143 - C2H3F3	430-66-0
18	HFC-143a - C2H3F3	420-46-2
19	HFC-227ea - C3HF7	431-89-0
20	HFC-236cb - CH2FCF2CF3	677-56-5
21	HFC-236ea - CHF2CHF2CF3	431-63-0
22	HFC-236fa - C3H2F6	690-39-1
23	HFC-245ca - C3H3F5	679-86-7
24	HFC-245fa - CHF2CH2CF3	460-73-1
25	HFC-365mfc - CF3CH2CF2CH3	406-58-6

GB-39 REACH Candidate List of Substances of Very High Concern

The complete REACH Candidate List of SVHCs for Authorisation (Annex XIV) can be found at <http://echa.europa.eu/de/candidate-list-table>

GB-44 + GB-45 Polyaromatic hydrocarbons (PAHs)

No.	Chemical Substance	CAS-No.
1	Acenaphtene	83-32-9
2	Acenaphtylene	208-96-8
3	Anthracene	120-12-7
4	Benzo (a) anthracene	56-55-3
5	Benzo (a) pyrene	50-32-8
6	Benzo (e) pyrene	192-97-2
7	Benzo (b) fluoranthene	205-99-2
8	Benzo (g,h,i) perylene	191-24-2
9	Benzo (j) fluoranthene	205-82-3
10	Benzo (k) fluoranthene	207-08-9
11	Chrysene	218-01-9
12	Dibenzo (a,h) anthracene	53-70-3
13	Fluoranthene	206-44-0
14	Fluorene	86-73-7
15	Indeno (1,2,3-cd) pyrene	193-39-5
16	Naphtalene	91-20-3
17	Phenathrene	85-01-8
18	Pyrene	129-00-0