

# Exhibit

## YKK Restricted Substance List (YKK RSL)

2020 Edition (Ver. 3.0)  
Revised July 1<sup>st</sup>, 2020

YKK Corporation  
Fastening Products Group  
SCM Center / QEM Dept.

- Revised the name of this document
  - Former : "Restricted substance list and details"
  - New : "YKK Restricted Substance List"
  
- Deleted
  - 8. Organic tin compounds
    - Methyltin (MT)
  
- Added
  - 1. Extractable heavy-metals
    - Barium (CAS No. :7440-39-3)
    - Selenium (CAS No. :7782-49-2)
  - 6. Pesticides
    - Endosulfan (CAS No. :115-29-7)
  - 7. Glyphosate and salts
    - Glyphosate and salts  
(CAS No. :1071-83-6, 38641-94-0, 70901-12-1, 40465-66-5)
  - 8. Organic tin compounds (organotin)
    - Tetraoctyltin compounds
  - 14. Other Arylamines, cleavable arylamines; amine salts
    - Aniline (CAS No. :62-53-3)
    - 4-Chloro-o-toluidinium chloride (CAS No. :3165-93-3)
    - 2,4,5-Trimethylaniline (CAS No. :21436-97-5)
    - 2-Naphthylammoniumacetate (CAS No. :553-00-4)
    - 2,4-Diaminoanisole sulphate (CAS No. :391456-41-7)
  - 18. Forbidden flame retardant substances
    - MCCP (CAS No. :85535-85-9)
    - HBCDD (CAS No. :3194-55-6, 134237-50-6, 134237-51-7, 134237-52-8)
    - Monobromobiphenyls (CAS No. :various)
    - Dibromobiphenyls (CAS No. :various)
    - Tribromobiphenyls (CAS No. :various)
    - Tetrabromobiphenyls (CAS No. :various)
    - Pentabromobiphenyls (CAS No. :various)
    - Hexabromobiphenyls (CAS No. :various)
    - Heptabromobiphenyls (CAS No. :various)
    - Octabromobiphenyls (CAS No. :various)
    - Nonabromobiphenyls (CAS No. :various)
    - Decabromobiphenyls (CAS No. :13654-09-06)
    - Polybrominated diphenyl ethers (CAS No. :various)
    - Zinc borate salts (CAS No. :1332-07-6, 12767-90-7)
    - Disodium octaborate (CAS No. :12008-41-2)
  - 19. Surfactant, wetting agent residues
    - Heptylphenol (CAS No. :various)
    - Pentylphenol (CAS No. :various)
  - 20. Other chemical residues
    - Bisphenol A (CAS No. :80-05-7)
    - Phenol (CAS No. :108-95-2)
    - Quinoline (CAS No. :91-22-5)
    - Diazene-1,2-dicarboxamide (CAS No. :123-77-3)
    - Aniline (CAS No. :62-53-3)
    - TNPP (CAS No. :various)

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## CHANGE HISTORY

### 23. Siloxanes

Octamethylcyclotetrasiloxane (CAS No. :556-67-2)  
 Decamethylcyclotetrasiloxane (CAS No. :541-02-6)  
 Dodecamethylcyclotetrasiloxane (CAS No. :540-97-6)

### 24. N-Nitrosamines

N-Nitrosodibenzylamine (CAS No. :5336-53-8)  
 N-Nitrosodibutylamine (CAS No. :924-16-3)  
 N-Nitrosodiethanolamine (CAS No. :1116-54-7)  
 N-Nitrosodiethylamine (CAS No. :55-18-5)  
 N-Nitrosodiisobutylamine (CAS No. :997-95-5)  
 N-Nitrosodiisononylamine (CAS No. :1207995-62-7)  
 N-Nitrosodiisopropylamine (CAS No. :601-77-4)  
 N-Nitrosodimethylamine (CAS No. :62-75-9)  
 N-Nitrosodipropylamine (CAS No. :621-64-7)  
 N-Nitrosomethylethylamine (CAS No. :10595-95-6)  
 N-Nitrosomorpholine (CAS No. :59-89-2)  
 NPhA (CAS No. :612-64-6)  
 NMPA (CAS No. :614-00-6)  
 N-Nitroso-piperidine (CAS No. :100-75-4)  
 N-Nitroso-pyrrolidine (CAS No. :930-55-2)

#### •Change of Reference Value

		Former	New
1. Extractable heavy-metals	Cr VI	L.D.L	0.5 ppm
4. Phthalates	Refer to the List	sum 250 ppm	each 100 ppm
9. PFCs / Perfluorinated Compounds	Refer to the List	0.05 ppm	0.025 ppm
		0.5 ppm	0.25 ppm
20. Other chemical residues	o-Phenylphenol	50 ppm	10 ppm

L.D.L : lower than detection limit

#### •New Standard Value

		Reference Value
2. Heavy metals in digested sample	Arsenic	100 ppm
	Mercury	0.5 ppm
20. Other chemical residues	Benzene	5 ppm

#### •Correction of CAS number

		Former	New
13. Other banned dyestuffs	C.I. Acid Violet 49	1649-09-3	1694-09-3
15. Chlorinated benzenes and toluenes	Trichlorotoluenes	98-07-0	98-07-7

End of the Change History.

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

1. Extractable heavy-metals	Acronym	CAS No.	Limit Value	test method
Antimony	Sb	7440-36-0	30 ppm	EN1811 (ISO 105-E04 inacid solution)  Cr(VI) : ISO 17075
Arsenic	As	7440-38-2	0.2 ppm	
Lead	Pb	7439-92-1	0.2 ppm	
Cadmium	Cd	7440-43-9	0.1 ppm	
Chromium	Cr	7440-47-3	1 ppm	
Cr VI		18540-29-9	0.5 ppm	
Cobalt	Co	7440-48-4	1 ppm	
Copper	Cu	7440-50-8	25 ppm	
Nickel	Ni	7440-02-0	1 ppm	
Mercury	Hg	7439-97-6	0.02 ppm	
Barium	Ba	7440-39-3	1000 ppm	
Selenium	Se	7782-49-2	100 ppm	
Zinc	Zn	7440-66-6	750 ppm	
Mangan	Mn	7439-96-5	90 ppm	

2. Heavy metals in digested sample	Acronym	CAS No.	Limit Value	test method
Arsenic	As	7440-38-2	100 ppm	Total digestion ISO 17294-2(2003) or DIN EN ISO 11885 (2009)
Lead at metal material	Pb	7439-92-1	90 ppm	
Cadmium	Cd	7440-43-9	40 ppm (Oeko-tex)	
Mercury	Hg	7439-97-6	0.5 ppm	

3. Chlorinated phenols	Acronym	CAS No.	Limit Value	test method
Pentachlorophenol	PCP	87-86-5	0.05 ppm	1M KOH extraction, 12-15 hours at 90° C, derivatized and analysis § 64 LFGB B 82.02-08 or DIN EN ISO 17070:2015
2,3,5,6-Tetrachlorophenol		935-95-5	0.05 ppm (sum)	
2,3,4,6-Tetrachlorophenol		58-90-2		
2,3,4,5-Tetrachlorophenol		4901-51-3		
2,3,4-Trichlorophenol		15950-66-0	0.2 ppm (sum)	
2,3,5-Trichlorophenol		933-78-8		
2,3,6-Trichlorophenol		933-75-5		
2,4,5-Trichlorophenol		95-95-4		
2,4,6-Trichlorophenol		88-06-2		
3,4,5-Trichlorophenol		609-19-8	0.5 ppm (sum)	
2,3-Dichlorophenol		576-24-9		
2,4-Dichlorophenol		120-83-2		
2,5-Dichlorophenol		583-78-8		
2,6-Dichlorophenol		87-65-0		
3,4-Dichlorophenol		95-77-2	0.5 ppm (sum)	
3,5-Dichlorophenol		591-35-5		
2-Chlorophenol		95-57-8		
3-Chlorophenol		108-43-0		
4-Chlorophenol		106-48-9		

4. Phthalates	Acronym	CAS No.	Limit Value	test method
Butylbenzylphthalate	BBP	85-68-7	100 ppm (each)	EN 15777 GC-MS LC-MS
Dibutylphthalate	DBP	84-74-2		
Dimethylphthalate	DMP	131-11-3		
Di-(2-ethylhexyl)-phthalate	DEHP	117-81-7		
Di-(2-methoxyethyl)-phthalate	DMEP	117-82-8		
Di-C6-8-branched alkylphthalates,C7 rich	DIHP	71888-89-6		
Di-C7-11-branched and linear alkylphthalates	DHNUP	68515-42-4		
Di-cyclohexylphthalate	DCHP	84-61-7		
Di-hexylphthalate,branched and linear	DHxP	68515-50-4		
Di-iso-butylphthalate	DIBP	84-69-5		
Di-iso-decylphthalate	DIDP	26761-40-0		
Di-iso-hexylphthalate	DIHxP	68515-49-1		
Di-iso-nonylphthalate	DINP	28553-12-0		
Di-n-hexylphthalate	DHP	84-75-3		
Di-n-octylphthalate	DNOP	117-84-0		
Di-pentylphthalate (n-, iso-, or mixed)	DPP	131-18-0		
		605-50-5		
		776297-69-9		
Di-n-nonylphthalate	DNP	84-76-4		
Di-ethylphthalate	DEP	84-66-2		
Di-n-propylphthalate	DPRP	131-16-8		
Di-iso-octylphthalate	DIOP	27554-26-3		
1,2-Benzenedicarboxylic acid, di-C6-10 alkyl esters		68515-51-5		
1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters		68648-93-1		
sum				

5. UV stabilizers	Acronym	CAS No.	Limit Value	test method
2-(2H-Benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol	UV 350	36437-37-3	usage ban (1000 ppm)	ソックスレー抽出 GC-MS
2-(2H-Benzotriazol-2-yl)-4,6-di-tert-pentylphenol	UV 328	25973-55-1		
2,4-Di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol	UV 327	3864-99-1		
2-Benzotriazol-2-yl-4,6-di-tert-butylphenol	UV 320	3846-71-7		

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

6. Pesticides	Acronym	CAS No.	Limit Value	test method
2,4,5-T (2,4,5-トリクロロフェニル酢酸)		93-76-5	0.5 ppm (sum)	ASE or Soxhlet Extraction with Acetone/Hexane GC-MS or LC-MC
2,4-D		94-75-7		
Acetamiprid		135410-20-7		
		160430-64-8		
Aldicarb		116-06-3		
Aldrine		309-00-2		
Azinophosmethyl		86-50-0		
Azinophosethyl		2642-71-9		
Bromophos-ethyl		4824-78-6		
Captafol		2425-06-1		
Carbaryl		63-25-2		
Chlorbenzilate		510-15-6		
Chlordane		57-74-9		
Chlordimeform		6164-98-3		
Chlorfenvinphos		470-90-6		
Clothianidin		210880-92-5		
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		
DDT		50-29-3		
		789-02-6		
Diazinon		333-41-5		
Dichlorprop		120-36-5		
Dicrotophos		141-66-2		
Dieldrine		60-57-1		
Dimethoate		60-51-5		
Dinoseb, its salts and acetate		88-85-7 et al		
Dinotefuran		165252-70-0		
Endosulfan		115-29-7		
Endosulfan, $\alpha$ -		959-98-8		
Endosulfan, $\beta$ -		33213-65-9		
Endrine		72-20-8		
Esfenvalerate		66230-04-4		
Fenvalerate		51630-58-1		
Heptachlor		76-44-8		
Heptachloroepoxide		1024-57-3		
Heptachloroepoxide		28044-83-9		
Hexachlorobenzene		118-74-1		
Hexachlorcyclohexane, $\alpha$ -		319-84-6		
Hexachlorcyclohexane, $\beta$ -		319-85-7		
Hexachlorcyclohexane, $\delta$ -		319-86-8		
Imidacloprid		105827-78-9		
		138261-41-3		
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		
Nitenpyram		150824-47-8		
		120738-89-8		
Parathion		56-38-2		
Parathion-methyl		298-00-0		
Perthane		72-56-0		
Phosdrin/Mevinphos		7786-34-7		
Phosphamidone		13171-21-6		
Propethamphos		31218-83-4		
Profenophos		41198-08-7		
Quinalphos		13593-03-8		
Strobane		8001-50-1		
Telodrine		297-78-9		
Thiacloprid		111988-49-9		
Thiamethoxam		153719-23-4		
Toxaphene		8001-35-2		
Trifluralin		1582-09-8		

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

7. Glyphosate and salts	Acronym	CAS No.	Limit Value	test method
Glyphosate and salt		1071-83-6	5 ppm (sum)	ASE or Soxhlet Extraction with Acetone/Hexane GC-MS or LC-MC
		38641-94-0		
		70901-12-1		
		40465-66-5		

8. Organic tin compounds (organotin)	Acronym	CAS No.	Limit Value	test method
Dibutyltin	DBT		0.5 ppm (each)	ISO/TS 16179 (2012)
Dimethyltin	DMT			
Diocetyl tin	DOT			
Diphenyltin	DPhT			
Dipropyltin	DPT			
Monomethyltin	MMT			
Monobutyltin	MBT			
Monooctyltin	MOT			
Monophenyltin	MPhT			
Tetrabutyltin	TeBT			
Tetraethyltin	TeET			
Tributyltin	TBT			
Tricyclohexyltin	TCyHT			
Trimethyltin	TMT			
Trioctyltin	TOT			
Triphenyltin	TPhT			
Tripropyltin	TPT			
Tetraoctyltin compounds	TeOT		1 ppm	Solvent extraction, GC MS, ISO TS 16179

9. PFCs / Perfluorinated Compounds	Acronym	CAS No.	Limit Value	test method
Perfluorooctanoic acid	PFOA	various	1 µg/m <sup>3</sup>	CEN/TS 15968:2014
Perfluorooctane sulfonates	PFOS	various	1 µg/m <sup>3</sup> (sum)	
Perfluorooctane sulfonamide 754-91-6 PFOSA	PFOSA	754-91-6		
Perfluorooctane sulfonfluoride	PFOSF / POSF	307-35-7		
N-Methyl perfluorooctane sulfonamide	N-Me-FOSA	31506-32-8		
N-Ethyl perfluorooctane sulfonamide	N-Et-FOSA	4151-50-2		
N-Methyl perfluorooctane sulfonamide ethanol	N-Me-FOSE	24448-09-7		
N-Ethyl perfluorooctane sulfonamide ethanol	N-Et-FOSE	1691-99-2		
Perfluoroheptanoic acids	PFHpA	various		
Perfluorononanoic acids	PFNA	various		
Perfluorodecanoic acids	PFDA	various		
Henicosafuoroundecanoic acid	PFUdA	2058-94-8		
Tricosafuorododecanoic acid	PFDoA	307-55-1		
Pentacosafuorotridecanoic acid	PFTrDA	72629-94-8		
Heptacosafuorotetradecanoic acid	PFTeDA	376-06-7		
Perfluorobutanoic acid	PFBA	375-22-4	0.025 ppm (each)	
Perfluoropentanoic acid	PFPeA	2706-90-3		
Perfluorohexanoic acid	PFHxA	307-24-4	0.025 ppm (each)	
Perfluoro(3,7-dimethyloctanoic acid)	PF-3,7-DMOA	172155-07-6		
Perfluorobutane sulfonic acid	PFBS	375-73-5	0.025 ppm (each)	
		59933-66-3		
Perfluorohexane sulfonic acid	PFHxS	355-46-4	0.025 ppm (each)	
Perfluoroheptane sulfonic acid	PFHpS	375-92-8		
Henicosafuorodecane sulfonic acid	PFDS	335-77-3	0.025 ppm (each)	
7H-Perfluoro heptanoic acid	7HPFHpA	1546-95-8		
2H,2H,3H,3H-Perfluoroundecanoic acid	4HPFUnA	34598-33-9	0.25 ppm (each)	
1H,1H,2H,2H-Perfluorooctane sulfonic acid	1H, 1H, 2H, 2H-PFOS	27619-97-2		
1H,1H,2H,2H-Perfluoro-1-hexanol	4:2 FTOH	2043-47-2	0.25 ppm (each)	
1H,1H,2H,2H-Perfluoro-1-octanol	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		
1H,1H,2H,2H-Perfluorooctyl acrylate	6:2 FTA	17527-29-6	0.25 ppm (each)	
1H,1H,2H,2H-Perfluorodecyl acrylate	8:2 FTA	27905-45-9		
1H,1H,2H,2H-Perfluorododecyl acrylate	10:2 FTA	17741-60-5		

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

10. Arylamines having carcinogenic properties	Acronym	CAS No.	Limit Value	test method
MAK III, category 1				
4-Aminobiphenyl		92-67-1	usage ban (Quantitation limit:20 ppm)	DIN 54231
Benzidine		92-87-5		
4-Chloro-o-toluidine		95-69-2		
2-Naphthylamine		91-59-8		
MAK III, category 2				
o-Aminoazotoluene		97-56-3	usage ban (Quantitation limit:20 ppm)	DIN 54231
2-Amino-4-nitrotoluene		99-55-8		
p-Chloroaniline		106-47-8		
2,4-Diaminoanisole		615-05-4		
4,4'-Diaminodiphenylmethane		101-77-9		
3,3'-Dichlorobenzidine		91-94-1		
3,3'-Dimethoxybenzidine		119-90-4		
3,3'-Dimethylbenzidine		119-93-7		
4,4'-Methylenedi-o-toluidine		838-88-0		
p-Cresidine		120-71-8		
4,4'-Methylene-bis-(2-chloroaniline)		101-14-4		
4,4'-Oxydianiline		101-80-4		
4,4'-Thiodianiline		139-65-1		
o-Toluidine		95-53-4		
2,4-Toluylenediamine		95-80-7		
2,4,5-Trimethylaniline		137-17-7		
o-Anisidine (2-Methoxyaniline)		90-04-0		
2,4-Xylidine		95-68-1		
2,6-Xylidine		87-62-7		
4-Aminoazobenzene		60-09-3		

11. Dyestuffs classified as carcinogenic	C.I. Structure #	CAS No.	Limit Value	test method
C.I. Acid Red 26	C.I. 16 150	3761-53-3	usage ban (Quantitation limit:20 ppm)	DIN 54231
C.I. Basic Red 9	C.I. 42 500	569-61-9		
C.I. Basic Violet 14	C.I. 42 510	632-99-5		
C.I. Direct Black 38	C.I. 30 235	1937-37-7		
C.I. Direct Blue 6	C.I. 22 610	2602-46-2		
C.I. Pigment Red 104	C.I. 77 605	12656-85-8		
C.I. Direct Red 28	C.I. 22 120	573-58-0		
C.I. Disperse Blue 1	C.I. 64 500	2475-45-8		
C.I. Disperse Orange 11	C.I. 60 700	82-28-0		
C.I. Disperse Yellow 3	C.I. 11 855	2832-40-8		
C.I. Pigment Yellow 34	C.I. 77 603	1344-37-2		
C.I. Basic Blue 26 (with $\geq$ 0.1 % Michler's ketone or base)		2580-56-5		
C.I. Basic Violet 3 (with $\geq$ 0.1 % Michler's ketone or base)		548-62-9		
C.I. Disperse Blue 3	C.I. 61 505	2475-46-9		
C.I. Basic Green 4 (malachite green chloride)		569-64-2		
C.I. Basic Green 4 (malachite green oxalate)		2437-29-8		
C.I. Basic Green 4 (malachite green oxalate)		18015-76-4		
C.I. Basic Green 4 (malachite green)		10309-95-2		
C.I. Solvent Yellow 1 (4-Aminoazobenzene)	C.I. 11100	60-09-3		
C.I. Solvent Yellow 3 (o-Aminoazotoluene)		97-56-3		
C.I. Direct Brown 95		16071-86-6		
C.I. Direct Blue 15		2429-74-5		
C.I. Acid Red 114		6459-94-5		

12. Dyestuffs classified as allergenic	C.I. Structure #	CAS No.	Limit Value	test method
C.I. Disperse Blue 1	C.I. 64 500	2475-45-8	usage ban (Quantitation limit:20 ppm)	DIN 54231
C.I. Disperse Blue 3	C.I. 61 505	2475-46-9		
C.I. Disperse Blue 7	C.I. 62 500	3179-90-6		
C.I. Disperse Blue 26	C.I. 63 305	3860-63-7		
C.I. Disperse Blue 35		12222-75-2		
C.I. Disperse Blue 102		12222-97-8		
C.I. Disperse Blue 106		12223-01-7		
C.I. Disperse Blue 124		61951-51-7		
C.I. Disperse Brown 1		23355-64-8		
C.I. Disperse Orange 1	C.I. 11 080	2581-69-3		
C.I. Disperse Orange 3	C.I. 11 005	730-40-5		
C.I. Disperse Orange 37		<a href="#">51811-42-8</a>		
C.I. Disperse Orange 59	C.I. 11 132	13301-61-6		
C.I. Disperse Orange 76		<a href="#">12223-33-5</a>		
C.I. Disperse Red 1	C.I. 11 110	2872-52-8		
C.I. Disperse Red 11	C.I. 62 015	2872-48-2		
C.I. Disperse Red 17	C.I. 11 210	3179-89-3		
C.I. Disperse Yellow 1	C.I. 10 345	119-15-3		
C.I. Disperse Yellow 3	C.I. 11 855	2832-40-8		
C.I. Disperse Yellow 9	C.I. 10 375	6373-73-5		
C.I. Disperse Yellow 39		12236-29-2		
C.I. Disperse Yellow 49		54824-37-2		

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

13. Other banned dyestuffs	C.I. Structure #	CAS No.	Limit Value	test method
C.I. Disperse Orange 149		85136-74-9	usage ban (Quantitation limit:20 ppm)	DIN 54231
C.I. Disperse Yellow 23	C.I. 26 070	6250-23-3		
Component 1: C <sub>39</sub> H <sub>23</sub> ClCrN <sub>7</sub> O <sub>12</sub> S <sub>2</sub> Na		118685-33-9		
Component 2: C <sub>46</sub> H <sub>30</sub> CrN <sub>10</sub> O <sub>20</sub> S <sub>2</sub> 3Na		various		
C.I. Basic Green 4 (oxalate)		2437-29-8		
		18015-76-4		
C.I. Basic Green 4 (chloride)		569-64-2		
C.I. Basic Green 4 (free)		10309-95-2		
C.I. Solvent Yellow 2		60-11-7		
C.I. Solvent Yellow 14		842-07-9		
C.I. Basic Violet 1		8004-87-3		
C.I. Direct Blue 218		28407-37-6		
C.I. Acid Violet 49		1694-09-3		

14. Other Arylamines, cleavable arylamines; amine salts	Acronym	CAS No.	Limit Value	test method
Aniline		62-53-3	20 ppm (sum)	Extraction with MeOH // ISO 18857-2 (2009)
4-Chloro-o-toluidinium chloride		3165-93-3		
2,4,5-Trimethylaniline		21436-97-5		
2-Naphthylammoniumacetate		553-00-4		
2,4-Diaminoanisole sulphate		391456-41-7		

15. Chlorinated benzenes and toluenes	Acronym	CAS No.	Limit Value	test method
Dichlorobenzenes		95-50-1	1 ppm (sum)	DIN 54232
		541-73-1		
		106-46-7		
Chlorobenzene		108-90-7		
		87-61-6		
Trichlorobenzenes		108-70-3		
		120-82-1		
		634-66-2		
Tetrachlorobenzenes		634-90-2		
		95-94-3		
		608-93-5		
Pentachlorobenzene		118-74-1		
Hexachlorobenzene		95-49-8		
		108-41-8		
		106-43-4		
Chlorotoluenes		32768-54-0		
		19398-61-9		
		25186-47-4		
		95-73-8		
		118-69-4		
Dichlorotoluenes		95-75-0		
		7359-72-0		
		6639-30-1		
		23749-65-7		
		21472-86-6		
Trichlorotoluenes		2077-46-5		
		98-07-7		
		76057-12-0		
		29733-70-8		
Tetrachlorotoluenes		875-40-1		
		5216-25-1		
		877-11-2		
Pentachlorotoluene				



Restricted Substances, Limit values and Test methods

Blue: additions and changes

16. 多環芳香族炭化水素 (PAH)	略称	CAS No.	基準値	試験方法
Benzo[a]pyrene	BaP	50-32-8	0.5 ppm (each)	EPA 8310 EPA 8270D EPA 8275A AfPS GS 2014:01
Benzo[e]pyrene		192-97-2		
Benzo[a]anthracene		56-55-3		
Chrysene		218-01-9		
Benzo[b]fluoranthene		205-99-2		
Benzo[j]fluoranthene		205-82-3		
Benzo[k]fluoranthene		207-08-9		
Dibenzo[a,h]anthracene		53-70-3		
Acenaphthene		83-32-9		
Acenaphthylene		208-96-8		
Anthracene		120-12-7		
Benzo[ghi]perylene		191-24-2		
Cyclopenta[c,d]pyrene		27208-37-3		
Dibenzo[a,e]pyrene		192-65-4		
Dibenzo[a,h]pyrene		189-64-0		
Dibenzo[a,i]pyrene		189-55-9		
Dibenzo[a,l]pyrene		191-30-0		
Fluoranthene		206-44-0		
Fluorene		86-73-7		
Indeno[1,2,3-cd]pyrene		193-39-5		
1-Methylpyrene		2381-21-7		
Phenanthrene		85-01-8		
Pyrene		129-00-0		
Naphthalene		91-20-3	2ppm	
sum			5ppm (sum)	
17. Solvent residues	Acronym	CAS No.	Limit Value	test method
1-Methyl-2-pyrrolidone	NMP	872-50-4	500 ppm (each)	Extraction with MeOH GC-MS or LC-MS
N,N-Dimethylacetamide	DMAc	127-19-5		
Dimethylformamide	DMF	68-12-2		ISO/TS 16189 (2013)
Formamide		75-12-7	200 ppm	Extraction with MeOH GC-MS

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

18. Forbidden flame retardant substances	Acronym	CAS No.	Limit Value	test method
Short chain chlorinated paraffins (C10 - C13)	SCCP	85535-84-8	50 ppm (sum)	ISO 18219 (2016)
Medium chain chlorinated paraffins (C14- C17)	MCCP	85535-85-9		
Tris-(2-chloroethyl)phosphate	TCEP	115-96-8	10 ppm	
2,2-bis(bromomethyl)-1,3-propanediol	BBMP	3296-90-0	usage ban (Only Oeko-Tex certified flame retardant can be used)	Extraction following IEC 62321-6 (2015) LC-MS, GC-MS, GC-NC
Bis-(2,3-dibromopropyl)phosphate	BIS	5412-25-9		
Boric acid		10043-35-3		
		11113-50-1		
Tetrabromodiphenylether	tetraBDE	various (40088-47-9)		
Pentabromodiphenylether	penta BDE	various (32534-81-9)		
Hexabromodiphenylether	hexaBDE	various (36483-60-0)		
Heptabromodiphenylether	heptaBDE	various (68928-80-3)		
Octabromodiphenylether	octaBDE	various (32536-52-0)		
Tribromodiphenylether	triBDE	various		
Dibromodiphenylether	diBDE	various		
monobromodiphenylether	monoBDE	various		
Decabromodiphenylether	decaBDE	1163-19-5		
Nonabromodiphenylether	nonaBDE	various (63936-56-1)		
Diboron trioxide		1303-86-2		
Disodium tetraborate, anhydrous		1303-96-4		
		1330-43-4		
		12179-04-3		
Hexabromocyclododecane and all main diastereomeres identified( $\alpha$ -, $\beta$ -, $\gamma$ -)	HBCDD	various		
		3194-55-6		
		134237-50-6		
		134237-51-7		
		134237-52-8		
25637-99-4				
Polybrominated biphenyls	PBBs	59536-65-1		
Tetraboron disodium heptaoxide, hydrate		12267-73-1		
Tetrabromobisphenol A	TBBPA	79-94-7		
Tri-(2,3-dibromopropyl)-phosphate	TRIS	126-72-7		
Tris-(1,3-dichloro-2-propyl)phosphate	TDCPP	13674-87-8		
Tris-(aziridinyl)-phosphin oxide	TEPA	545-55-1		
Trixylylphosphate	TXP	25155-23-1		
Antimony trioxide	Sb203	1309-64-4		
Antimony pentoxide	Sb205	1314-60-9		
Tri-o-cresyl phosphate		78-30-8		
Monobromobiphenyls	MonoBB	various		
Dibromobiphenyls	DiBB	various		
Tribromobiphenyls	TriBB	various		
Tetrabromobiphenyls	TetraBB	various		
Pentabromobiphenyls	PentaBB	various		
Hexabromobiphenyls	HexaBB	various		
Heptabromobiphenyls	HeptaBB	various		
Octabromobiphenyls	OctaBB	various		
Nonabromobiphenyls	NonaBB	various		
Decabromobiphenyl	DecaBB	13654-09-06		
Polybrominated diphenyl ethers	PBDEs	various		
Zinc borate salts		1332-07-6		
		12767-90-7		
Disodium octaborate		12008-41-2		
			refer to "Testing Methods STANDARD 100 by Oeko-Tex <sup>®</sup> "	
			Extraction following IEC 62321-6 (2015) LC-MS, GC-MS, GC-NCI	
			refer to "Testing Methods STANDARD 100 by Oeko-Tex <sup>®</sup> "	
19. Surfactant, wetting agent residues	Acronym	CAS No.	Limit Value	test method
Nonylphenol	NP	various	5ppm (sum)	ISO 18254-1 (2016)
		104-40-5		
		11066-49-2		
		25154-52-3		
Octylphenol	OP	84852-15-3		
		various		
		140-66-9		
		1806-26-4		
		27193-28-8		
Heptylphenol	HpP	various		
Pentylphenol	PeP	various		
Nonylphenoethoxylates	NP(EO) NPEO	various	50ppm (sum: NP+OP+HpP +PeP+NPEO+OPEO)	
		9016-45-9		
		26027-38-3		
		37205-87-1		
		68412-54-4		
Octylphenoethoxylates	OP(EO) OPEO	127087-87-0		
		various		
		9002-93-1		
		9036-19-5		
		68987-90-6		

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

20. Other chemical residues	Acronym	CAS No.	Limit Value	test method
o-Phenylphenol	OPP	90-43-7	10 ppm	Sample Preparation: §64 BVL B 82.02.08 Measurement: GC-MS, LC-MS for confirmation
Short chained chlorinated paraffines (C10 - C13)	SCCP	85535-84-8	50 ppm	ISO 18219 (2016)
Tris(2-chloroethyl)phosphate	TCEP	115-96-8	10 ppm	
Dimethylfumarate	DMFu	624-49-7	0.1 ppm	CEN ISO/TS 16186:2012
Benzene		71-43-2	5 ppm	refer to "Testing Methods STANDARD 100 by Oeko-Tex®"
Bisphenol A (4,4'-Isopropylidenediphenol)	BPA	80-05-7	1000 ppm	
Phenol		108-95-2	20 ppm	
Quinoline		91-22-5	50 ppm	
Diazene-1,2-dicarboxamide	ADCA	123-77-3	1000 ppm	
Aniline		62-53-3	20 ppm	
Tris(4-nonylphenyl, branched and linear) phosphite with 0.1% w/w of 4-nonylphenol, branched and linear	TNPP	various	No regulation value. (If TNPP is included, it is detected as Nonylphenol (NP) in Surfactant, wetting agent residues.) ※ by Nissenken	

21. クレゾール	略称	CAS No.	基準値	試験方法
o-Cresol		95-48-7	10 ppm (each)	Extraction with KOH* GC-MS
p-Cresol		106-44-5		
m-Cresol		108-39-4		

22. Other VOCs and glycols	Acronym	CAS No.	Limit Value	test method	
Methylethylketone	MEK	78-93-3	10 ppm (each)	EN71-11	
Ethylbenzene		100-41-4			
Xylene		95-47-6			
		108-38-3			
		106-42-3			
		1330-20-7 (Mixture)			
Cyclohexanone		108-94-1			
2-Ethoxyethyl acetate		111-15-9			
1,2,3-Trichloropropane		96-18-4			Headspace GC-MS
Acetophenone		98-86-2			Extraction in acetone GC/MS, sonication for 30 minutes at 60°C
Naphthalene		91-20-3	2 ppm	EPA 8310 EPA 8270D EPA 8275A AfPS GS 2014:01	
2-Phenyl-2-propanole		617-94-7	10 ppm (each)	Extraction in acetone GC/MS, sonication for 30 minutes at 60°C	
Bis(2-methoxyethyl)-ether		111-96-6		EN71-11	
Styrene		100-42-5	1 ppm	120°C for one hour headspace solvent extraction GC-MS; Methanol extraction at 60°C	
Benzene / Benzol		71-43-2		EN71-11	
Toluene		108-88-3	10 ppm		
1-Methyl-2-pyrrolidone (NMP)		872-50-4	500 ppm (each)	2-Step Extraction with THF and MeOH GC-MS	
N,N-Dimethylacetamide (DMAc)		127-19-5		For general VOC screening: GC/MS headspace 120°C, 45 minutes. Except for DMAc: DIN CEN ISO/TS 16189:2013	
N,N-Dimethylformamide (DMF)		68-12-2		DIN CEN ISO/TS 16189:2013	
2-Ethoxyethanol		110-80-5	10 ppm (each)	Extraction with MeOH GC-MS	
Ethylene glycol dimethyl ether		110-71-4			
2-Methoxyethanol		109-86-4			
2-Methoxyethylacetate		110-49-6			
2-Methoxypropylacetate		70657-70-4			
Triethylene glycol dimethyl ether		112-49-2			EN71-11

23. Siloxanes	Acronym	CAS No.	Limit Value	test method
Octamethylcyclotetrasiloxane	D4	556-67-2	1000 ppm (each)	refer to "Testing Methods STANDARD 100 by Oeko-Tex®"
Decamethylcyclotetrasiloxane	D5	541-02-6		
Decamethylcyclohexasiloxane	D6	540-97-6		

## Restricted Substances, Limit values and Test methods

Blue: additions and changes

24. N-Nitrosamines	Acronym	CAS No.	Limit Value	test method
N-Nitrosodibenzylamine	NDBzA	5336-53-8	0.5 ppm (each)	refer to "Testing Methods STANDARD 100 by Oeko-Tex®"
N-Nitrosodibutylamine	NDBA	924-16-3		
N-Nitrosodiethanolamine	NDELA	1116-54-7		
N-Nitrosodiethylamine	NDEA	55-18-5		
N-Nitrosodiisobutylamine	NDiBA	997-95-5		
N-Nitrosodiisononylamine	NDiNa	1207995-62-7		
N-Nitrosodiisopropylamine	NDiPA	601-77-4		
N-Nitrosodimethylamine	NDMA	62-75-9		
N-Nitrosodipropylamine	NDPA	621-64-7		
N-Nitrosomethylethylamine	NMEA	10595-95-6		
N-Nitrosomorpholine	NMOR	59-89-2		
N-Nitroso-N-ethyl-N-phenylamine	NEPhA	612-64-6		
N-Nitroso-N-methyl-N-phenylamine	NMPhA	614-00-6		
N-Nitroso-piperidine	NPIP	100-75-4		
N-Nitroso-pyrrolidine	NPYR	930-55-2		
sum			5 ppm	

  

25. Chlorinated solvents	Acronym	CAS No.	Limit Value	test method
Dichloromethane(Methylene chloride)	DCM	75-09-2	1 ppm	For general VOC screening: GC/MS headspace 120°C, 45 minutes.
Chloroform (Trichloromethane)		67-66-3		
Tetrachloromethane		56-23-5		
1,1-Dichloroethane		75-34-3		
1,2-Dichloroethane		107-06-2		
1,1,1-Trichloroethane		71-55-6		
1,1,2-Trichloroethane		79-00-5		
1,1,1,2-Tetrachloroethane		630-20-6		
1,1,2,2-Tetrachloroethane		79-34-5		
Pentachloroethane		76-01-7		
1,1-Dichloroethylene		75-35-4		
1,2-Dichloroethylene		540-59-0		
1,2-Dichloroethylene		156-59-2		
1,2-Dichloroethylene		156-60-5		
Trichloroethylene		79-01-6		
Tetra(per)chloroethylene		127-18-4		
sum				

  

26. pH value	Acronym	CAS No.	Limit Value	test method
	pH		4.0 - 7.5	ISO3071 ISO4045

  

27. Formaldehyde	Acronym	CAS No.	Limit Value	test method
Formaldehyde		50-00-0	16 ppm	ISO 14184-1 ISO 14184-2