eco-INSTITUT-Label Test criteria: Furniture

(Status: March 2023)



Laboratory testing

Zertifizierung Certification



A Basic requirements

Pyrethroids

- Full declaration of the materials
- Minimisation requirements for substances with dangerous properties according to dangerous substances regulations.
- Compliance with requirements for dangerous substances refer to C laboratory examinations
- Compliance with the provisions of the European (e.g. REACH Regulation (EC) No. 1907/2006 and Biocidal Products Regulation (EU) 528/2012) and German chemicals legislation
- Materials with the following classifications may not be used in the product:

Substances according to Regulation (EC) No. 1272/2008 Category Carc. 1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B
Substances according to national law (TRGS 905): Category K1A and K1B, M1A and M1B, R1A and R1B
Substances according to MAK lists III1 and III2
Substances according to IARC groups 1 and 2A
Substances requiring official approval as per Appendix XIV of the REACH regulations
Substances of very high concern according to REACH Regulation (EC) No. 1907/2006, Article 59, paragraph 1 (SVHC, Candidate List)
POPs (Persistent Organic Pollutants) according to Regulation (EC) No 850/2004
Arsenic, lead, cadmium, mercury and compounds
Organic compounds of tin
Antimony trioxide
HFC
Organophosphates
Organic halogenated compounds

Phthalatic acid esters, Terephthalatic acid esters (apart from PET), DINCH

Substances with the following classification (H-phrase) must not be used in the product¹:

Description		H-Statement
	Fatal if swallowed.	H300
Fatal	Fatal in contact with skin.	H310
	Fatal if inhaled.	H330
	Toxic if swallowed.	H301
Toxic	Toxic in contact with skin.	H311
	Toxic if inhaled.	H331
	Cause damage to organs.	H370
Specific target organ	May cause damage to organs.	H371
toxicity	Causes damage to organs through prolonged or repeated exposure.	H372
	May cause damage to organs through prolonged or repeated exposure.	H373
Sensitization of respiratory tract	May cause allergy or asthma symptoms or breathing difficulties if inhaled.	H334
Carcinogonicity	May cause cancer.	H350
Carcinogenicity	Suspected of causing cancer.	H351
Mutagonicity	May cause genetic defects.	H340
Suspected of causing genetic defects.		H341
	May damage fertility or the unborn child.	H360
Reproductive toxicity	Suspected of damaging fertility or the unborn child.	H361
	May cause harm to breast-fed children.	H362
Acute hazardous to water	Very toxic to aquatic life.	H400
al : II I	Very toxic to aquatic life with long lasting effects.	H410
Chronically hazardous to water	Toxic to aquatic life with long lasting effects.	H411 (> 1 %)
Hazardous to ozone layer	Hazardous to the ozone layer.	EUH 059

B Special requirements²

- The use of biocides including moth repellents is not permitted.
- Tropical timber may only be used if it comes from sustainable forestry (proof: FSC).
- Photoinitiators are allowed in coating agents.
- The use of chloroprene containing adhesives is permitted.
- The use of isocyanates is only permitted if the final polymerization takes place in the factory and the product does not release any monomeric isocyanates (proof: emission test).
- The use of the following vulcanization agents in latex production is permissible: ZnO (CAS: 1314-13-2), ZMBT / MBT (CAS: 155-04-4/149-30-4), ZDEC (CAS: 14324-55-1), ZBEC (CAS: 14726-36-4), ZDBC (CAS: 136-23-2), sodium hexafluorosilicate (CAS: 16893-85-9), 1,3-diphenylguanidine (CAS: 102-06-7), poly-(dicyclopentadiene-co-p-cresol) (CAS: 68610-51-5).

Prerequisite: Wastewater must be treated in internal or external wastewater treatment plants before being discharged into the environment. Wastewater analyses must be performed and documented regularly.

- Products with leather components are subject to additional requirements and are currently not certified.
- In the case of board materials, the proportion of renewable / mineral raw materials is at least 75 m%.

¹ For homogeneous substance mixtures, all input substances > 0.1 % (except for H411) are evaluated. For articles, the overall classification of the input substance or substance mixture (e.g. adhesive, varnish, etc.) is evaluated.

Inputs that have critical hazard characteristics (H-phrase) due to respirable wood dusts or mineral dusts are allowed, provided the overall product does not have a critical hazard characteristic.

Input materials with critical hazard characteristics (H-phrase) for which a requirement value is defined in the laboratory test are permissible, provided that the requirement for emission behaviour or content is met and the requirement value was derived from the property that the H-phrase also addresses.

² If there are indications that materials used are classified as critical from an ecological point of view or cannot be produced consistently with the same properties, they can be excluded from certification.

Laboratory examinations

P12 Complete furniture					
Test parameter	Requirements	Test method			
Emission test					
TVOC (total volatile organic compounds)	$\leq 400 \ \mu g/m^3$ (3 days after test chamber loading) $\leq 200 \ \mu g/m^3$ (28 days after test chamber loading)				
VOC (incl. VVOC and SVOC) with the following categorisations: ³ Regulation (EC) No. 1272/2008: Category Carc. 1A and 1B, Muta. 1A and 1B, Repr. 1A and 1B; TRGS 905: K1A, K1B, M1A, M1B, R1A, R1B; IARC: Group 1 and 2A; DFG (MAK list): Categories III1, III2	$\leq 1~\mu g/m^3$ (3 and 28 days after test chamber loading)				
Dimethylformaldehyd (DMF, only covering materials)	\leq 5 $\mu g/m^3$ (3 days after test chamber loading)				
VOC (sum) without NIK	$\leq 100 \ \mu g/m^3$ (28 days after test chamber loading)				
VOC (individual values):					
Sum of bicyclic terpenes	$\leq 200 \ \mu g/m^3$ (28 days after test chamber loading)				
Sum of sensitising materials with the following categorisations: DFG (MAK lists): Category IV, TRGS 907	$\leq 100~\mu g/m^3$ (28 days after test chamber loading)				
Sum of VOC (incl. VVOC and SVOC) with the following categorisations: Regulation (EC) No. 1272/2008: Category Carc. 2, Muta. 2, Repr. 2; TRGS 905: K2, M2, R2; IARC: Group 2B; DFG (MAK list): III3	\leq 50 $\mu g/m^3$ (28 days after test chamber loading)	DIN EN 16516, DIN ISO 16000-3, DIN ISO 16000-6,			
Sum C9 – C14 Alkanes / Isoalkanes	$\leq 200~\mu g/m^3$ (28 days after test chamber loading)	DIN EN ISO 16000-9			
Sum C4 – C11 Aldehydes, acyclic, aliphatic	$\leq 100~\mu g/m^3$ (28 days after test chamber loading)	T			
Sum C6 – C15 Alkyl benzenes	$\leq 100~\mu g/m^3$ (28 days after test chamber loading)	Test chamber conditions: cf. testing manual			
Sum Cresols	\leq 5 $\mu g/m^3$ (28 days after test chamber loading)				
Sum Xylenes	$\leq 100~\mu g/m^3$ (28 days after test chamber loading)				
Sum Naphthalene and naphthalene-like subst.	$\leq 10~\mu g/m^3$ (28 days after test chamber loading)				
VOC (individual substances):					
Methylisothiazolinone (MIT)	$\leq 1~\mu g/m^3$ (28 days after test chamber loading)				
Octylisothiazolinone (OIT)	$\leq 1 \ \mu g/m^3$ (28 days after test chamber loading)				
Benzaldehyde	$\leq 20~\mu g/m^3$ (28 days after test chamber loading)				
2-Ethyl-1-hexanol, Ethylene glycol mono-butyl ether, 2-Hexoxyethanol (Requirements per single substance)	$\leq 100~\mu g/m^3$ (28 days after test chamber loading)				
2-Butoxyethyl acetate	$\leq 200 \ \mu g/m^3$ (28 days after test chamber loading)				
Glycol ethers with insufficient data ⁴ (Requirements per single substance)	0.005 ppm (28 days after test chamber loading)				
Propane-1,2-diol	\leq 60 $\mu g/m^3$ (28 days after test chamber loading)				
2-Phenoxyethanol	\leq 30 $\mu g/m^3$ (28 days after test chamber loading)				
Phenol	\leq 20 µg/m³ (28 days after test chamber loading)				
Benzothiazole ⁵	\leq 15 µg/m³ (28 days after test chamber loading)				
Acetophenone	\leq 66 µg/m ³ (28 days after test chamber loading)				

³ does not apply for Dimethylformamide (DMF) for products with covering materials
4 cf. announcement of the Federal Environment Agency: guideline values for glycol ethers and glycol esters in indoor air, Bundesgesundheitsblatt, February 2013, Volume 56, Issue 2, pp 286-320.
5 preliminary, exceeding the limit does not lead to devaluation at present

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P12 Complete furniture

Test parameter	Requirements	Test method	
Emission test			
Ethyl acetate (VVOC)	\leq 600 $\mu g/m^3$ (28 days after test chamber loading)		
R value	\leq 1.0 (28 days after test chamber loading)		
TSVOC (total semi-volatile organic compounds)	\leq 40 µg/m³ (28 Tage nach Prüfkammerbeladung)		
Disulphide (only for latex foams)	\leq 50 µg/m³ (3 days after test chamber loading)		
Nitrosamines (only for latex foams)	$\leq 0.1 \ \mu g/m^3$ (3 days after test chamber loading)	BGI 505.23	
Ammonia (only for latex foams and smoked products)	≤ 100 µg/m³ (28 days after test chamber loading)	UV/VIS spectrometric analysis	
Monomeric isocyanates (only if appropriate feedstocks are used)	$\leq 1~\mu g/m^3~(TDI,~HDI)$ $\leq 2~\mu g/m^3~(MDI)$ (24 hours after test chamber loading)	Extraktion, HPLC/UV- Detektion	
Formaldehyde			
Wood, bamboo, rattan or the like	\leq 36 µg/m ³ (28 days after test chamber loading)		
Other materials (plastics, lacquered metal or the like)	\leq 24 µg/m ³ (28 days after test chamber loading)	DIN EN 16516	
Acetaldehyd		DIN ISO 16000-3	
Wood, bamboo, rattan or the like	\leq 36 µg/m ³ (28 days after test chamber loading)		
Other materials (plastics, lacquered metal or the like)	\leq 24 µg/m ³ (28 days after test chamber loading)		
Odour	\leq Grade 4 (3 days after test chamber loading) \leq Grade 3 (28 days after test chamber loading at the latest)	cf. testing manual	
Content analysis ⁶			
AOX (adsorbable organic halogenated compounds)	≤ 1.0 mg/kg	DIN EN ISO 9562	
EOX (extractable organic halogenated compounds)	≤ 2 mg/kg	following DIN 38414-S17	
Phthalates (plasticizer; sum) DMP, DEP, DPP, DBP, BBP, DEHP, DNOP, DIBP, BMEP, DHP, DNPP, DIPP, PIPP, DINP, DIDP, DIHP, DHNUP, DIHXP	≤ 100 mg/kg	following DIN EN 15777	
Terephthalate DEHT	≤ 100 mg/kg	following DIN EN 15777	
Diisononyl cyclohexane-1,2-dicarboxylate, DINCH	≤ 100 mg/kg	following DIN EN 15777	
Organotin compounds (only surface coatings and PU-based plastics; requirements per single substance) TBT, DBT, TeBT, MBT, MOT, DOT, TcyT, TPhT	≤ 0.05 mg/kg	Extraction, analysis, following DIN EN ISO 17353	
PAH / Polycyclic aromatic hydrocarbons (only black plastics) Sum PAH after EPA (18 substances)	≤ 0.5 mg/kg	DIN ISO 18287	

⁶ If there are indications that the basic requirements (exclusion of the substance groups listed there) are not met or if there is insufficient information on the substances used, additional content analysis may be necessary.

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P2 Covering materials	P21 Undyed textile covering materials	P22 Dyed textile covering materials	Test method	
Test parameter	Requirements	Requirements		
Content analysis ⁵				
AOX (adsorbable organic halogenated compounds)	-	≤ 5.0 mg/kg	DIN EN ISO 9562	
Heavy metals		<u> </u>		
Aluminium (Al)	-	-		
Arsenic (As)	-	≤ 0.2 mg/kg		
Cadmium (Cd)	-	\leq 0.1 mg/kg		
Cobalt (Co)	-	\leq 1.0 mg/kg		
Chrome total (Cr)	-	\leq 3.0 mg/kg		
Chrome VI (Cr VI)	-	≤ 3.0 mg/kg	Eluate, analysis ICP/MS	
Copper (Cu)	-	\leq 25 mg/kg	Cr VI: DIN EN ISO 17075	
Mercury (Hg)	-	\leq 0.02 mg/kg		
Nickel (Ni)	-	\leq 1.0 mg/kg		
Lead (Pb)	-	\leq 0.2 mg/kg		
Antimony (Sb)	≤ 5.0 mg/kg (only synthetic or blended fibers;does not apply for accessories)	≤ 5.0 mg/kg		
Pesticides/Biocides				
Pyrethroids (animal fibres; sum) Cyfluthrin, Cyhalothrin, Cypermethrin, Deltamethrin, Esfenvalerat, Fenvalerat, Flumethrin, Permethrin, Transfluthrin	≤ 1.0 mg/kg	≤ 1.0 mg/kg		
Pyrethroids (sum; only natural fibers or blended fabric, except animal fibres)	≤ 0.5 mg/kg	≤ 0.5 mg/kg		
Pesticides without pyrethroids (sum; only natural fibers or blended fabric) 2,4,5-T, 2,4-D, Acetameprid, Aldrin, Atrazine, Azinophos-ethyl, Azinophosmethyl, Bendiocarb, Bifenthrin, Bioresmethrin, Bromophos-ethyl, Buprofezin, Captafol, Carbaryl, Carbosulfan, Clethodim, Chlordane, Chlordimeform, Chlorfenapyr, Chlorfenvinphos, Chlorfluazuron, Chlorpyrifosethyl, Chlorpyrifos-methyl, Coumaphos, Cyclanilide, DDD, DDE, DDT, DEF, Diafenthiuron, Diazinon, Dichlofenthion, Dichlorprop, Dichlorvos, Dicrotophos, Diedirin, Diflubenzuron, Dimethoat, Dinoseb und Salze, Diuron, Empenthrin, ca-Endosulfan, B-Endosulfan, Endosulfansulfate, Endrin, Ethion, Fenchlorphos, Fenitrothion, Fenthion, Fenpropathrin, Fibronil, Heptachlor, Heptachlorepoxid, Hexachlorbenzol, ca-HCH, B-HCH, B-HCH, Imidacloprid, Isodrin, Kelevan, Kepon, Lindan, Lufenuron, Malathion, McPa, MCPB, Mecoprop, Methamidophos, Mieria, Moncrotophos, Parathion-methyl, Pendimethalin, Perthan, Phosalon, Phosdrin, Phosmet, Phoxim, Pirimiphos-ethyl, Pirimiphos-methyl, Profenophos, Prometryn, Propetamphos, Pymethrozine, Quinalphos, Quintozin, Stroban, Teflubenzuron, Telodrin, Tetrachlorvinphos, Thiamethoxam, Thidiazuron, Trifluralin	≤ 0.5 mg/kg	≤ 0.5 mg/kg	following DFG-S19, GC-ECD	
Orthophenylphenol (OPP; only natural fibers or blended fabric)	≤ 1.0 mg/kg	≤ 1.0 mg/kg	Extraction, esterification, GC/MS	
Chlorophenols (sum; only natural fibers or blended fabric) PCP, 2,3,4,5-TeCP, 2,3,4,6-TeCP, 2,3,5,6-TeCP, 2,3,5-Trichlorophenol, 2,3,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol	≤ 0.1 mg/kg	≤ 0.1 mg/kg	CEN / TR 14823	
Triclosan	≤ 0.5 mg/kg	≤ 0.5 mg/kg	CEN / TR 14823	
Organotin compounds (requirements per single substance) TBT, DBT, TeBT, MBT, MOT, DOT, TcyT, TPhT	-	≤ 0.05 mg/kg	Extraction, analysis following DIN EN ISO 17353	

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P2 Covering materials	P21 Undyed textile covering materials	P22 Dyed textile covering materials		
Test parameter	Requirements	Requirements	Test method	
Formaldehyde	≤ 20 mg/kg	≤ 20 mg/kg	DIN EN ISO 14184-1, LFGB § 64, 82.02-1	
Amines (azo dyes)	-	≤ 20 mg/kg	DIN EN 14362-1, -3	
Allergenic dyes materials (dispersion dyes materials; only synthethic fibers or blended fabric)	1	≤ 50 mg/kg	DIN 54231	
Chloroorganic carriers (only synthetic fibers or blended fabric)	-	≤ 1.0 mg/kg	Extraction with acetone, GC/MS	
Optical brighteners	no rating	no rating	UV light	
pH value	4.0-7.5 (skin contact) 4.0-9.0 (no skin contact)	4.0-7.5 (skin contact) 4.0-9.0 (no skin contact)	DIN EN ISO 3071	
Colour fastness	-	perspiration fastness (shade change), alkaline/acidic: \geq 3-4 perspiration fastness (staining), alkaline/acidic: \geq 3-4 rubbing fastness, dry: \geq 3-4 rubbing fastness, wet: \geq 2 light fastness: 3-4	LFGB	
Alkylphenol(ethoxylates) (sum; only animal fibres) NP, OP, HPP, PEP, NPEO, OPEO	≤ 20 mg/kg	≤ 20 mg/kg	HPLC-MS/MS, GC/MSD	
Phthalates (Sum; only printings) DMP, DEP, DPP, DBP, BBP, DEHP, DNOP, DIBP, BMEP, DHP, DNPP, DIPP, PIPP, DINP, DINP, DHNUP, DIHXP	≤ 100 mg/kg	≤ 100 mg/kg	Following DIN EN 15777	
Terephthalate DEHT	\leq 100 mg/kg	≤ 100 mg/kg	Following DIN EN 15777	
Diisononyl cyclohexane-1,2-dicarboxylate, DINCH	≤ 100 mg/kg	≤ 100 mg/kg	Following DIN EN 15777	

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P3 Upholstery / padding materials	P31 Latex	P32 Latexed fibres	P33 Pure / cold foam	P34 Synthetic fibers	P35 Plant & animal fibres		
Test parameter	Requirements	Requirements	Requirements	Requirements	Requirements	Test method	
Content analysis							
AOX (adsorbable organic halogenated compounds)	-	-	≤ 1.0 mg/kg	≤ 1.0 mg/kg	-	DIN EN ISO 9562	
EOX (extractable organic halogenated compounds)	-	-	≤ 2 mg/kg	≤ 1.0 mg/kg	-	following DIN 38414-S17	
Heavy metals						rl	
Antimony (Sb; does not apply for accessories)	-	-	-	≤ 5.0 mg/kg	-	Eluate, analysis ICP/MS	
Pesticides/Biocides							
Pyrethroids (animal fibres; sum) Cyfluthrin, Cyhalothrin, Cypermethrin, Deltamethrin, Esfenvalerat, Fenvalerat, Flumethrin, Permethrin, Transfluthrin	-	-	-	-	≤ 1.0 mg/kg		
Pyrethroids (sum; only natural fibers or blended fabric; except animal fibres)	-	≤ 1.0 mg/kg	-	-	≤ 0.5 mg/kg		
Pesticides without pyrethroids (sum; only natural fibers or blended fabric) 2,4,5-T, 2,4-D, Acetameprid, Aldrin, Atrazine, Azinophos-ethyl, Azinophosmethyl, Bendiocarb, Bifenthrin, Bioresmethrin, Bromophos-ethyl, Buprofezin, Captafol, Carbaryl, Carbosulfan, Clethodim, Chlordane, Chlordimeform, Chlordynifos-methyl, Coumaphos, Cyclanilide, DDD, DDE, DDT, DEF, Diafenthiuron, Diazinon, Dichlofenthion, Dichlorprop, Dichlorvos, Dicrotophos, Dieldrin, Diflubenzuron, Dimethoat, Dinoseb und Salze, Diuron, Empenthrin, α-Endosulfan, β-Endosulfan, Endosulfansulfate, Endrin, Ethion, Fenchlorphos, Fenitrothion, Fenthion, Fenpropathrin, Fibronil, Heptachlor, Heptachlorepoxid, Hexachlorbenzol, α-HCH, β-HCH, β-HCH, Imidacloprid, Isodrin, Kelevan, Kepon, Lindan, Lufenuron, Malathion, MCPA, MCPB, Mecoprop, Methamidophos, Methidathion, Methomyl, Methoxychlor, Metolachlor, Mevinphos, Mirex, Monocrotophos, Parathion-ethyl, Parathion-methyl, Pendimethalin, Perthan, Phosalon, Phosdin, Phosmet, Phoxim, Pirimiphos-ethyl, Pirimiphos-methyl, Profenophos, Prometryn, Propetamphos, Pymethrozine, Quinalphos, Quintozin, Stroban, Teflubenzuron, Telodrin, Tetrachlorvinphos, Thiamethoxam, Thidiazuron, Thiodicarb, Toclofosmethyl, Toxaphen, Trifloxysulfuron-sodium, Triflumuron, Trifluralin	-	-	-	-	≤ 0.5 mg/kg	following DFG-S19	
Orthophenylphenol (OPP; only natural fibers or blended fabric)	-	≤ 1.0 mg/kg	-	-	≤ 1.0 mg/kg	Extraction, DFG/S19, GC/MS	
Chlorophenols (sum; only natural fibers or blended fabric) PCP, 2,3,4,5-TeCP, 2,3,4,6-TeCP, 2,3,5,6-TeCP, 2,3,5-Trichlorophenol, 2,3,6-Trichlorophenol, 2,4,6-Trichlorophenol	-	≤ 0.1 mg/kg	-	-	≤ 0.1 mg/kg	CEN / TR 14832	
Organotin compounds (requirements per single substance) TBT, DBT, TPT, MBT, MOT, DOT, TCyT, TPhT	-	-	≤ 0.05 mg/kg	≤ 0.05 mg/kg	-	Extraction, analysis following DIN EN ISO 17353	

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P3 Upholstery / padding materials	P31 Latex	P32 Latexed fibres	P33 Pure / cold foam	P34 Synthetic fibers	P35 Plant & animal fibres	
Test parameter	Requirements	Requirements	Requirements	Requirements	Requirements	Test method
Content analysis						
Phthalates (sum) DMP, DEP, DBP, BBP, DEHP, DNOP, DIBP, BMEP, DHP, DNPP, DIPP, PIPP, DINP, DIDP, DHNUP, DHNUP, DIHXP	-	-	≤ 500 mg/kg	-	-	following DIN EN 15777
Terephthalate DEHT	-	-	≤ 500 mg/kg	-	-	following DIN EN 15777
Formaldehyde	-	-	-	-	≤ 20 mg/kg	DIN EN ISO 14184-1, LFGB § 64.82, 02-1
Optical brighteners	=	-	-	no rating	no rating	UV light
Organophosphorous flame retardants (sum) TMP, TEP, TIBP, TIBP, TDBPP, TCEP, TCPP, TDCPP, TEHP, TBEP, TPHP, TKP	-	-	≤ 10 mg/kg	-	-	following DFG S 19
Alkylphenol(ethoxylates) (sum; only animal fibres) NP, OP, HpP, PeP, NPEO, OPEO	-	-	-	-	≤ 20 mg/kg	HPLC-MS/MS, GC/MSD
Natural latex content	no rating	no rating	-	-	-	IR/ATR
Filler content	≤ 5 %	-	-	-	-	Thermo-gravimetry IR/ATR