

SG Mark for Low-Pollutant Leather Products

Version 01/2015



Responsibility for Consumer Health

Consumers generally regard leathers and furs as natural products. However, anybody who ventures to delve into the details of leather and fur production will soon discover that leathers and furs acquire their desired properties through tanning, finishing, and dyeing. These processes depend upon the use of chemicals.

And chemicals are also used in the processing, storage, and transport of leathers, furs, and products made from these materials.

Chemical products are indispensable in the production and processing of leathers and furs – today and in the foreseeable future.

Clearly, chemical substances may only be used in such a way that they pose no hazard to human health or the environment. In the interests of consumer and environmental protection, it is important that leather and fur are produced properly and with due care and that suitable auxiliary agents and environmentally friendly materials are used in production and processing.

This high quality standard should be assured and certified by independent inspections.

SG Mark Supports Responsible Manufacturers

Manufacturers and dealers of leather products such as footwear, leather goods, leather clothing, and materials for their production should be totally familiar with, and exercise responsible control over, the supply chain of their goods.

Labelling the products with the SG Mark (where SG stands for “Schadstoffgeprüft”, meaning “tested for hazardous compounds”) provides ideal support for these aims. The mark testifies to a degree of care exercised during production and distribution which goes beyond legal requirements.

The SG Mark is awarded exclusively by the Test and Research Institute Pirmasens, PFI. The Institute was founded about 60 years ago for product testing, research, and certification for the footwear industry and its suppliers and offers a unique treasure house of industry-specific know-how.

Only those products which satisfy the stringent limit values and pollutant parameters listed in the SG catalogue of test criteria are awarded the SG Mark. The SG limit values generally lie far below statutory levels.

The mark indicates that according to our present knowledge no health hazards are to be expected. And that gives the consumer – and also the manufacturer – confidence.

Strictest Test Criteria

The catalogue of SG test criteria was developed by experts on the basis of the latest scientific findings. Precisely which tests are performed on a particular leather or fur product will depend upon the materials in question, upon the auxiliary substances used in its production, and upon the production process. The tests ensure reliable detection of relevant hazardous substances.

The test results are supplemented by appropriate documentation provided by the product supplier concerning the raw materials used and the production process. Consistently high product quality is assured by the product manufacturer's quality control regime.

Annual random checks are performed by PFI on products and materials which have been awarded the SG Mark.

Requirements

The SG Mark can only be awarded if a company has been ISO 9001 certified or audited by our PFI experts. For the consumer, the presence of the SG Mark on a product communicates a message of particular care taken by the manufacturer. It means that

- dyes which can release carcinogenic amines,
- carcinogenic and allergenic dyes,
- chromium VI compounds, and
- organotin compounds

cannot be detected and that

- the formaldehyde content lies below the declaration limit of the Cosmetics Regulation,
- the amount of soluble heavy metals with a hazardous or sensitizing action meets strict limit values,
- no banned short-chain chloroparaffins (C₁₀-C₁₃) are present and no substances of very high concern (SVHC) are present in inadmissible concentrations.

Articles intended for use by small children are subject to particularly stringent requirements.

Further information

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Test criteria for the SG Mark

Version 01/2015

Parameter	Components ^[1] made from leather, fur	Components ^[1] made from textiles	Components ^[1] made from leather fibre board (lefa) ^[2]	Components ^[1] made from cardboard, paper, wood, cellulose, cork	Adhesives ^[1]	Test method
	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	
Odour	max. 3 ^[4]	max. 3 ^[4]	max. 3 ^[4]	max. 3 ^[4]	max. 3 ^[4]	SNV 195651:1968
Flame-retardant finish	nu	nu	nu	nu	-	Declaration of manufacturer; if necessary XRF screening
Colour fastness: Colour fastness to rubbing ^[5] - Staining	at least grey scale grade 3	at least grey scale grade 4	at least grey scale grade 3	at least grey scale grade 3	-	Leather, lefa: DIN EN ISO 11640:2013 100 cycles dry rubbing, as well as 50 cycles rubbing with sweat solution (according to DIN EN ISO 11641:2004) Textile / other materials: DIN EN ISO105-X12:2002 dry rubbing and rubbing with acidic and alkaline sweat solution: 10 cycles each according to DIN EN ISO 105-E04:2013
Colour fastness: Colour fastness to perspiration ^[5] - Staining	at least grey scale grade 3	at least grey scale grade 4	at least grey scale grade 3	at least grey scale grade 3	-	Leather, lefa: DIN EN ISO 11641:2013 Textile / other materials: DIN EN ISO 105-E04:2013
pH-value of aqueous extract	3.5 – 7.0 ^[6]	4.5 – 7.5	3.5 – 7.0	4.5 – 7.5	-	Leather, lefa: DIN EN ISO 4045:2008 Textile / other materials: DIN EN ISO 3071:2006
Formaldehyde (free and released by partial hydrolysis)	100 mg/kg ^[7] 75 mg/kg ^[8] / 20 mg/kg	100 mg/kg ^[7] 75 mg/kg ^[8] / 20 mg/kg	100 mg/kg ^[7] 75 mg/kg ^[8] / 20 mg/kg	100 mg/kg ^[7] 75 mg/kg ^[8] / 20 mg/kg	100 mg/kg ^[7] 75 mg/kg ^[8] / 20 mg/kg	Leather, lefa: DIN EN ISO 17226:2008 Textile / other materials: DIN EN ISO 14184-1:2011 Wood: EN 717-3:1996
Pentachlorophenol (PCP) Tetrachlorophenols (each isomer) Trichlorophenols (each isomer)	0.5 mg/kg 0.5 mg/kg 0.5 mg/kg	0.5 / 0.05 mg/kg 0.5 mg/kg 0.5 mg/kg	0.5 mg/kg 0.5 mg/kg 0.5 mg/kg	0.5 mg/kg 0.5 mg/kg 0.5 mg/kg	0.5 mg/kg ^[9] 0.5 mg/kg 0.5 mg/kg	According to prDIN EN ISO 17070:2012
Pesticides ^[10] (sum)	1 mg/kg	1 mg/kg	1 mg/kg	1 mg/kg	-	Declaration of manufacturer; if necessary test according to DFG S19

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	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	
Wood preservatives ^[11] (sum)	-	-	-	1 mg/kg (wood only)	-	Declaration of manufacturer; if necessary test according to DFG S19
Tributyl tin compounds (TBT/TBTO) Dibutyl tin compounds (DBT) Monobutyl tin compounds (MBT) Triphenyl tin compounds (TPT) Diocetyl tin compounds (DOT)	0.025 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg	0.025 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg	0.025 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg	0.025 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg	0.025 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg	DIN CEN ISO/TS 16179; DIN SPEC 91179:2012
Banned azo dyes	nd ^[19]	nd ^[19]	nd ^[19]	nd ^[19]	nd ^[19]	Leather, lefa: prDIN EN ISO 17234-1:2012 DIN EN ISO 17234-2:2011 (4-Aminoazobenzene) Textile / PES / other materials: DIN EN 14362-1:2012, DIN EN 14362-3:2012 (4-Aminoazobenzene)
Carcinogenic and allergenic dyes ^[12]	-	nd ^[20]	-	-	-	DIN 54231:2005
Polycyclic aromatic hydrocarbons 18 PAH EPA/EU ^[13] 8 PAH EU ^[13]	Σ 10 mg/kg ^[14] 0.2 mg/kg each	Σ 10 mg/kg ^[14] 0.2 mg/kg each	Σ 10 mg/kg ^[14] 0.2 mg/kg each	Σ 10 mg/kg ^[14] 0.2 mg/kg each	Σ 10 mg/kg ^[14] 0.2 mg/kg each	AfPS GS 2014:01 PAK
Preservatives ^[15] - 2-(thiocyanomethylthio)-benzothiazole (TCMTB) - 4-chloro-3-methylphenol (PCMC, CMK) - 2-phenylphenol (OPP) - 2-octylisothiazol-3(2H)-one (OIT)	300 mg/kg 300 mg/kg 750 mg/kg 100 mg/kg	100 mg/kg	300 mg/kg 300 mg/kg 750 mg/kg 100 mg/kg	-	-	According to DIN EN ISO 13365:2011
Chromium VI (soluble)	-	nd ^[21]	-	nd ^[21]	-	According to DIN EN ISO 17075:2008

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	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	Limits for adults/children ^[3]	
Chromium VI (soluble) after aging	nd ^[21]	-	nd ^[21]	-	-	According to DIN EN ISO 17075:2008 Aging procedure: 24h at 80°C and < 5% relative humidity
soluble mineral tanning agents (Al, Cr, Ti, Zr total)	Σ 200 mg/kg / Σ 50 mg/kg	-	Σ 200 mg/kg / Σ 50 mg/kg	-	-	DIN EN ISO 17072-1:2011
Other heavy metals (soluble): Antimony Arsenic Cadmium Chromium, total Cobalt Copper Lead Mercury Nickel	5.0 mg/kg 0.2 mg/kg 0.1 mg/kg 4.0 mg/kg 50 mg/kg 0.8 mg/kg 0.02 mg/kg 4.0 mg/kg	5.0 mg/kg 0.2 mg/kg 0.1 mg/kg 2.0 mg/kg 4.0 mg/kg 50 mg/kg 0.8 mg/kg 0.02 mg/kg 4.0 mg/kg	0.2 mg/kg 0.1 mg/kg 4.0 mg/kg 50 mg/kg 0.8 mg/kg 0.02 mg/kg 4.0 mg/kg	0.2 mg/kg 0.1 mg/kg 2.0 mg/kg 4.0 mg/kg 50 mg/kg 0.8 mg/kg 0.02 mg/kg 4.0 mg/kg	-	Leather, lefa: DIN EN ISO 17072-1:2011 Textile / other materials: prDIN 54233-3:2010 prDIN EN 16711-2:2014
Chlorinated paraffins ^[16] (SCCP and MCCP)	nd ^[22]	nd ^[22]	nd ^[22]	nd ^[22]	-	According to prDIN EN ISO 18219:2012
Alkylphenols (NP and OP) ^[17]	30 mg/kg each	30 mg/kg each	30 mg/kg each	30 mg/kg each	30 mg/kg each	Leather, lefa: prDIN EN ISO 18218:2012
Alkylphenol ethoxylates (NPEO and OPEO) ^[17]	100 mg/kg each	100 mg/kg each	100 mg/kg each	100 mg/kg each	100 mg/kg each	Textile / other materials: prDIN EN ISO 18254:2014
Dimethyl fumarate	0.1 mg/kg	0.1 mg/kg	0.1 mg/kg	0.1 mg/kg	0.1 mg/kg	DIN CEN ISO/TS 16186; DIN SPEC 53280:2012
Triclosan	50 mg/kg	50 mg/kg	50 mg/kg	50 mg/kg	50 mg/kg	According to DIN EN ISO 13365:2011
1-Methyl-2-pyrrolidone (NMP)	500 mg/kg	-	500 mg/kg	-	500 mg/kg	prDIN EN ISO 19070:2014
PFOS ^[17] PFOA /APFO ^[17] for water-, oil- and dirt-repellent materials	1 µg/m ² 1 µg/m ²	1 µg/m ² 1 µg/m ²	1 µg/m ² 1 µg/m ²	-	-	According to DIN CEN/TS 15968; DIN SPEC 1038:2010

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Parameter	Components ^[1] made from plastics/ caoutchouc/ artificial leather/ polymer coating Limits for adults/children ^[3]	Test method
Odour	max. 3 ^[4]	SNV 195651:1968
Flame-retardant finish	nu	Declaration of manufacturer; if necessary XRF screening
Colour fastness: to rubbing ^[5]	At least grey scale grade 4 ^[8]	DIN EN ISO 105-X12: 2002 dry and with acidic and alkaline sweat solution according to DIN EN ISO 105-E04:2013
Colour fastness: to perspiration acidic and alkaline ^[5]	At least grey scale grade 4 ^[8]	DIN EN ISO 105-E04:2013
Global migration ^[8]	10 mg/dm ²	EN 1186 ff. 2002
Solvent residues in EVA - 2-Phenyl-2-propanol - Acetophenone	10 mg/kg 10 mg/kg	Headspace GC-MS
2-Mercaptobenzothiazole (2-MBT) in caoutchouc, latex	100 mg/kg ^[7] 10 mg/kg ^[8] / 10 mg/kg	Solvent extraction, HPLC/DAD
Nitrosamines in caoutchouc, latex ^[8]	1.0 µg/dm ²	According to DIN EN 12868:1999 (migration 24 h, 40 °C, without boiling out)
Banned azo dyes	nd ^[19]	Declaration of manufacturer; if necessary additional test according to DIN EN 14362-1:2012 DIN EN ISO 14362-3:2012 (4-Aminoazobenzene)
Lead	50 mg/kg	According to DIN EN 1122:2002
Cadmium	50 mg/kg	According to DIN EN 1122:2002
Dimethylformamide in synthetic leather, polymer coatings	100 mg/kg ^[7] 30 mg/kg ^[8] / 30 mg/kg	DIN CEN ISO/TS 16189; DIN SPEC 52411:2013
Formamide in EVA	100 mg/kg	According to DIN CEN ISO/TS 16189; DIN SPEC 52411:2013
Chlorinated paraffins ^[16] (SCCP and MCCP)	nd ^[22]	According to prDIN EN ISO 18219:2012
Tributyl tin compounds (TBT/TBTO) Dibutyl tin compounds (DBT) Monobutyl tin compounds (MBT) Triphenyl tin compounds (TPT) Dioctyl tin compounds (DOT))	0.025 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg 1 mg/kg	DIN CEN ISO/TS 16179; DIN SPEC 91179:2012

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Polycyclic aromatic hydrocarbons 18 PAH EPA/EU ^[13] 8 PAH EU ^[13]	Σ 10 mg/kg ^[14] 0.2 mg/kg	AfPS GS 2014:01 PAK
Phthalates ^[18] in softened plastics	Σ 500 mg/kg	DIN CEN ISO/TS 16181; DIN SPEC 91181:2011
Nonylphenol (NP) Octylphenol (OP)	30 mg/kg 30 mg/kg	Solvent extraction, GC/MS

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Nickel release	negative	CR 12471:2002, rubbing test before and after removal of a polymer coating
Cadmium, lead	50 mg/kg for each metal	According to DIN EN 1122:2002 (ASTM E 1645)

Footnotes

- [1] A manufacturer's declaration is required assuring that no SVHC included in the Candidate List (http://echa.europa.eu/chem_data/candidate_list_table_en.asp) are present in the product to be certified (> 1000 mg/kg)
- [2] For covered leather fibre board materials (lefa) without direct skin contact; the limits for leather apply to leather fibre board materials coming into direct contact with the skin
- [3] Children younger than 36 months, generally up to shoe size 27
- [4] 1= odourless; 2= weak; 3= distinct, tolerable; 4= extremely unpleasant; 5= intolerable
- [5] Grade 1 on the grey scale = very extensive crocking
Grade 5 on the grey scale = no crocking
- [6] A max. pH value of 8.0 is permitted for chamois leather
- [7] For materials not coming into direct contact with the skin
- [8] In cases of expected direct skin contact
- [9] In cured film
- [10] DDT, lindane, aldrin dieldrin, methoxychlor, DDD, DDE, heptachlor, heptachlor epoxide, HCH (a,b,d,e), malathion, mirex, parathion(-ethyl), permethrin in furs and wool
- [11] Lindane, dichlofluanid, pentachloroanisole, endosulfan, permethrin, chlorothalonil, tolylfluanid
- [12] Carcinogenic dyes: Acid red 26, Basic red 9, Basic violet 14, Direct black 38, Direct blue 6, Direct red 28, Disperse blue 1, Disperse orange 11, Disperse yellow 3
Allergenic dyes: Disperse blue 1, Disperse blue 3, Disperse blue 7, Disperse blue 26, Disperse blue 35, Disperse blue 102, Disperse blue 106, Disperse blue 124, Disperse brown 1, Disperse orange 1, Disperse orange 3, Disperse orange 37/76, Disperse Orange 149, Disperse red 1, Disperse red 11, Disperse red 17, Disperse yellow 1, Disperse yellow 3, Disperse yellow 9, Disperse Yellow 23, Disperse yellow 39, Disperse yellow 49
- [13] 16 PAH listed by the US EPA: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, dibenzo[a,h]anthracene, benzo[g,h,i]perylene, indeno[1,2,3-cd]pyrene and 8 EU-PAH listed in Directive 2005/69/EC: benzo[a]pyrene, benzo[e]pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[j]fluoranthene, benzo[k]fluoranthene, dibenzo[a,h]anthracene
- [14] PAH contents below 0.2 mg/kg are not considered in summation
- [15] Additional manufacturer's declaration required concerning preservation method and preservatives used
- [16] Short-chain chloroparaffins C10–C13 and medium-chain chloroparaffins C14–C17, additional manufacturer's declaration required concerning non-use of the chloroparaffins
- [17] In addition to analysis, a manufacturer's declaration is required concerning non-use of the substances
- [18] Diisononyl phthalate (DINP), di-n-octyl phthalate (DNOP), diethylhexyl phthalate (DEHP), diisodecyl phthalate (DIDP), benzyl butyl phthalate (BBP), di-n-butyl phthalate (DBP), diisobutyl phthalate (DIBP), bis-(2-methoxyethyl) phthalate (BMEP), di-n-hexyl phthalate (DNHP), 1,2-benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP), 1,2-benzenedicarboxylic acid di-C6-8-branched alkyl esters, C7-rich (DIHP), di-n-pentyl phthalate (DPP), diisopentyl phthalate (DIPP), n-pentyl isopentyl phthalate (PIPP)
- [19] 20 mg/kg per amine component
- [20] 1 mg/l (= 15 mg/kg) per dye
- [21] 3 mg/kg
- [22] 500 mg/kg
- nd not detectable (<LOD)
- nu not used (manufacturer's declaration)
- LOD limit of detection