LEATHER
STANDARD

Testing Methods
OEKO-TEX® LEATHER STANDARD

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OEKO-TEX®
International Association for Research and Testing in the Field of Textile and Leather Ecology.
国际环保纺织和皮革协会

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Testing procedures for authorization to use the OEKO-TEX® LEATHER STANDARD mark

授权使用 OEKO-TEX® LEATHER STANDARD 标识的检测程序。

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内容

30.1 Odour test on the other articles

30.1 对其他物品进行气味测试

General remarks

In case an article, which shall be certified according to OEKO-TEX® LEATHER STANDARD, contains also textile and non-textile (e.g. metallic) components, these components are tested according to the conditions and criteria of the OEKO-TEX® STANDARD 100 and the methods used there. For this purpose at this point it is referred to the corresponding documents.

总论

如果根据 OEKO-TEX® LEATHER STANDARD 认证的制品还含有纺织品和非纺织品（如金属）组件，则应根据 OEKO-TEX® STANDARD 100 的条件和标准及其规定的方法对这些组件进行检测。为此，其他相应文件中已对这一规定进行了引用。

Abbreviations

- AAS - atom absorption spectrometer
- CI - chemical ionisation
- DAD - diode array detector
- EI - electron impact
- EOS - optical emission spectrometry
- FLD - fluorescence detector
- IC - ion chromatography
- ICP - inductively coupled plasma
- GC - gas chromatography
- LC - liquid chromatography
- MS - mass spectrometry
- UV/VIS - ultraviolet-visible

缩写

- AAS - 原子吸收光谱仪
- CI - 化学电离
- DAD - 二极管阵列检测器
- EI - 电子电离
- EOS - 发射光谱法
- FLD - 荧光检测器
- IC - 离子色谱法
- ICP - 电感耦合等离子体
- GC - 气相色谱法
- LC - 液相色谱法
- MS - 质谱分析法
- UV/VIS - 紫外-可见分光光度法

1 pH value

The pH value is determined according to ISO 4045 using purified water as extraction solution.

pH 值

根据 ISO 4045 使用纯净水作为提取液测定 pH 值。

2 Formaldehyde

2.1 Quantitative determination of the content of free and partially releasable formaldehyde

The determination of the free and released formaldehyde is performed according to ISO 17226-1 using an aqueous extraction solution.

甲醛

定量测定游离的和可部分释放的甲醛的含量

根据 ISO 17226-1 使用水性提取溶液对游离甲醛和释放甲醛进行测定。

3 Heavy metals

3.1 Extraction with artificial acid sweat solution

The heavy metals with exception of chromium (VI) are extracted by use of artificial acidic sweat solution according to ISO 17072-1. The extract is analysed by means of ICP-OES, ICP-MS or AAS. Metallic accessories having a surface refinement or coating are subjected additional to a further test for extractable nickel after a pre- treatment (wear and

重金属

使用人造酸汗液提取

根据 ISO 17072-1 使用人造酸汗液提取除铬(VI)之外的重金属。通过 ICP-OES、ICP-MS 或 AAS 分析提取物。 经过表面细化或具有涂层的金属配饰在预处理（根据 EN 12472:2020 进行的磨损和腐蚀，用作其磨损介质）之后须接受可萃取镍的进一步检测。

corrosion according to EN 12472:2020, used for its abrasion medium).

3.2 Total digestion of the samples

样品的总消解

The samples are chemically digested using acids to get a clear solution, which is afterwards analysed by means of ICP-OES, ICP-MS or AAS. Different components of the sample, which can be differentiated macroscopically (base material, paints, etc.), are separately digested and analysed. The method is therefore suitable to check the samples for total lead content in reference to the requirement of the American legislation for children's articles (CPSIA, Consumer Product Safety Improvement Act).

使用酸对样品进行化学消解以获得澄清溶液，然后通过 ICP-OES、ICP-MS 或 AAS 对其进行分析。 对于能够在宏观上加以区分的不同样品组件(基础材料，油漆等），分别进行消解和分析。因此，根据美国儿童用品法规（CPSIA 消费品安全改进法）的要求，该方法适用于检测样品中的总铅含量。

3.3 Chromium (VI)

六价铬

Whenever possible the examination according to ISO 17075-2 (determination by means of ionic chromatography) is performed. When this is not possible, the colorimetric procedure by means of UV/VIS (ISO 17075-1) is performed.

根据 ISO 17075-2（通过离子色谱法测定）进行检测。如果无法做到这一点，则通过 UV/VIS （ISO 17075-1）进行比色测定。

4 Pesticides

杀虫剂

The tests for the pesticides which are mentioned in OEKO-TEX® LEATHER STANDARD are performed with cleaned-up extracts by GC-MS and LC-MS.

OEKO-TEX® LEATHER STANDARD 中农药测试使用 GC-MS 和 LC-MS 净化后的提取物进行。

5 Chlorinated phenols

氯化苯酚

The tests are performed according to ISO 17070. The substances are stripped off the leather sample by steam distillation. The samples is finally analysed for chlorinated phenols by means of GC-MS(/MS) or GC-ECD.

根据 ISO 17070 进行测定，物质通过蒸汽蒸馏方式从皮革样品上提取出来。最后通过 GC-MS（/MS）或 GC-ECD 对样品进行氯化苯酚分析。

6 Phthalates

塑化剂（邻苯二甲酸酯）

The test is performed by extraction of the testing material with tetrahydrofuran, followed by precipitation of the polymers with hexane. The extract is analysed by GC-MS.

通过四氢呋喃提取测试物质，后用正己烷沉淀聚合物来进行的测试。提取物通过 GC-MS 进行分析。

6.1 Siloxanes

硅氧烷

The test is performed by extraction of the testing material with tetrahydrofuran, followed by precipitation of the polymers with hexane. The extract is analysed by GC-MS

通过四氢呋喃提取测试物质，后用正己烷沉淀聚合物来进行测试，提取物通过 GC-MS 分析。

7 Organic tin compounds

有机锡化合物

The method is based on an extraction of the testing material with an ethanol/acetic acid solution and tropolone followed by derivatisation with sodium tetraethylborate. The extract is then analysed by GC-MS.

该方法基于用乙醇/乙酸溶液及托普隆提取测试物质，后用四乙基硼酸钠产生衍生作用。提取物通过 GC-MS 进行分析。

8 Short and medium chained chlorinated paraffins (SCCP & MCCP)

短链和中链氯化石蜡(SCCP & MCCP)

The method for the determination of the short and medium chained chlorinated paraffines is based on an extraction of the testing material with dichloromethane/hexane, followed by a clean-up and subsequent analysis with GC-MS. For a total analysis (sum of short, medium and long chained chlorinated paraffins) the instrument is operated in the EI mode. CI mode is used for the identification and quantification of the SCCP and MCCP congeners present in the sample.

在短链和中链氯化石蜡的测定中，使用二氯甲烷/正己烷提取测试物质，然后用 GC-MS 进行净化和分析。CI 模式用于定性和定量样品中存在的短链氯化石蜡和中链氯化石蜡同系物。仪器在 EI 模式下运行，筛查（分析所有短链、中链和长链氯化石蜡的总量）。

9 Per- and polyfluorinated compounds (PFCs) / Per- and polyfluoroalkyl substances (PFAS)

全氟和多氟化合物（PFC）/ 全氟和多氟烷基物质（PFAS）

The method for the determination of PFCs/PFAS is based on an extraction with methanol followed by determination of the PFCs/PFAS by means of LC-MS and GC-MS.

为测定全氟和多氟化合物，测试样品需要使用甲醇萃取。然后通过 LC-MS 和 GC-MS 测定 PFC/PFAS。

10 Dimethylfumarate (DMFu)

富马酸二甲酯（DMFu）

The method bases on an extraction of the samples with acetone. After preconcentration the extracts are analysed with GC-MS.

在富马酸二甲酯测定中，使用丙酮提取样品。预浓缩后，用 GC-MS 进行分析。

11 Human ecologically critical colorants

对人类生态学至关重要的着色剂

11.1 Cleavable arylamines and aniline

可裂解的芳香胺和苯胺

The tests for azo dyes, which may be cleaved into arylamines with cancerogenic properties are carried out following the official test methods according to ISO 17234-1 and 17234-2. The test for the aromatic amine aniline (cleavable from colorants as well as for the presence as chemical residue in free manner) is carried out together with the analyses of azo dyes.

根据 ISO 17234-1 和 17234-2 的官方测试方法对可裂解成具有致癌特性的芳香胺偶氮染料进行测试。芳香胺苯胺（可由着色剂裂解以及以化学残留物方式的游离存在）的检测可与偶氮染料分析一起进行。

11.2 Dyestuff and pigments with human ecologically critical properties (allergenic, carcinogenic

具有人类生态学关键特性（过敏性、致癌性）的染料和颜料

The identification and quantification of dyestuff and pigments is made through a hot acetone extraction followed by detection with LC-DAD or LC-MS.

染料和颜料的定性和定量测试通过热丙酮萃取，然后用 LC-DAD 或 LC-MS 进行检测。

12 Chlorinated benzenes and toluenes

The method is based on an ultrasonic bath extraction of the testing materials with dichloromethane. The extracts are analysed by means of GC-MS.

氯化苯和氯化甲苯

该测试方法使用二氯甲烷对测试物在超声波浴进行提取，然后通过 GC-MS 分析提取物。

13 Polycyclic aromatic hydrocarbons (PAH)

The method is based on extraction of the test samples with toluene. The extracts are analysed with GC-MS.

多环芳香烃（PAH）

该测试方法使用甲苯提取测试物，然后通过 GC-MS 分析提取物。

14 Solvent residues

The method is based on extraction of the test samples with methanol.The extracts are analysed with GC-MS.

溶剂残留

该测试方法使用甲醇提取测试物。然后通过 GC-MS 分析提取物。

15 UV stabilizers

The method bases on an extraction of the test samples with tetrahydrofuran. The extracts are then analysed with LC-DAD, LC-MS or GC-MS.

紫外线稳定剂

该测试方法使用四氢呋喃提取测试物。然后用 LC-DAD、LC-MS 或 GC-MS 分析提取物。

16 Banned flame retardants

The determination of the banned flame retardants is performed by extraction of the test material with organic solvents. The extract is analysed then by LC-MS and GC-MS.

禁用阻燃剂

禁用阻燃剂的测试是采用有机溶剂提取测试物来进行。然后使用 LCS-MS 或 GC-MS 分析。

17 Volatile organic compounds (VOCs), glycols, cresols and chlorinated solvents

The sample that is to be analysed for organic volatile compounds, glycols, cresols and chlorinated solvents is baked out by thermodesorption technique. The released substances are enriched on suitable trapping material and afterwards analysed by GC-MS.

挥发性有机化合物(VOC)、乙二醇、甲酚和氯化溶剂

通过热吸附方式进行挥发性有机化合物、乙二醇、甲酚和氯化溶剂的测试。将释放的物质富集于合适的捕集材料上，然后采用 GC-MS 进行分析。

18 Quinoline

The extraction of the samples is done with methanol. The measurement of the of quinoline extracted from the material and is performed in comparison with reference substances by use of LC-MS or GC-MS.

喹啉

用甲醇提取样品。使用 LC-MS 或 GC-MS 对从材料中提取的喹啉进行测量，并与对照物质进行比较。

19 N-nitrosamines and N-nitrosatable substances

The N-nitrosamines and N-nitrosatable substances migrate into a saliva test solution. The N-nitrosatable substances react to N-nitrosamines by acidification. The analysis of the N-nitrosamines and N-nitrosatable substances is done by LC-MS.

亚硝胺和亚硝基物质

亚硝胺和亚硝基物质迁移至唾液测试溶液中。亚硝基物质通过酸化反应生成亚硝胺。 使用 LC-MS 对亚硝胺和亚硝基物质进行分析。

20 Surfactants and wetting agent residues (Alkylphenols, Alkylphenol ethoxylates)

The method is based on extraction of the test samples with methanol. The extracts are then analysed with LC-MS and/or GC-MS.

表面活性剂和润湿剂残留（烷基酚、烷基酚聚氧乙烯醚）

该方法使用甲醇提取测试物。然后使用 LC-MS 和或 GC-MS 分析提取物。

21 Process preservative agents

The process preservative agents are extracted in an ultrasonic bath extraction with acetonitrile. The filtered extract is then analysed by LC-DAD.

加工防腐剂

使用乙腈超声浴提取法提取加工防腐剂。然后使用 LC-DAD 分析过滤后的提取物。

22 N-Methyl-2-pyrrolidone (NMP)

NMP is extracted from the leather samples in an ultrasonic bath with acetone. An aliquot of the extract is then used for a GC-MS analysis.

N-甲基吡咯烷酮 (NMP)

使用丙酮超声浴从皮革样品中提取 NMP。然后使用 GC-MS 分析提取物。

23 Emission

For the determination of emitted chemicals an emission chamber is used. The methods used are based on ISO 16000-3, 16000-6 and 16000-9.

释放

使用释放舱测定释放的化学物质。测定方法基于 ISO 16000-3、16000-6 和 16000-9。

23.1 Quantitative determination of formaldehyde emitting into the air

The sample is conditioned in the emission chamber under defined climatic conditions. After equilibration, the samples are adsorbed on different adsorbents. The analysis can then be performed by UV/VIS spectrometry or according to ISO 16000-3 using LC-DAD or LC-FLD.

空气中释放的甲醛的定量测定

样品在规定的气候条件下放入释放舱中。平衡后，样品吸附在不同的吸附剂上。然后可通过 UV/VIS 光谱法或根据 ISO 16000-3 使用 LC-DAD 或 LC-FLD 进行分析。

23.2 Emission of volatile and odorous compounds by gas chromatography

The sample is conditioned in the emission chamber. After equilibration, emitted substances are adsorbed on different adsorbents. The analysis is performed by thermal desorption and GC-MS.

气相色谱法测定挥发性和有气味化合物释放量

样品放入释放舱中。平衡后，释放的物质吸附在不同的吸附剂上。通过热脱附技术和 GC-MS 进行分析。

24 Glutaraldehyde

Glutaraldehyde is extracted from the leather samples in the ultrasonic bath with an aqueous solution, followed by an analysis through LC-DAD.

戊二醛

使用水溶液超声浴从皮革样品中提取戊二醛，然后使用 GC-MS 分析提取物。

25 Phenol

The determination of phenol is performed by extraction of the test material with methanol. The extract is analysed then by LC-FLD.

苯酚

苯酚的测定是通过用甲醇提取测试物来进行的。然后使用 LC-FLD 分析提取物。

26 Bisphenols

The determination of bisphenols is performed by extraction of the test material with THF followed by a precipitation. The extract is analysed then by LC-MS.

双酚类物质

双酚类物质的测定是通过用四氢呋喃萃取测试材料，然后沉淀。再使用 LC-MS 对提取物进行分析。

27 Extractable organic fluorine

The method is based on an ultrasonic bath extraction of samples with methanol. The extracts obtained are burned with oxygen in a combustion unit. The resulting HF is collected in an absorber solution and can then be analysed for the fluorine content using IC.

可萃取有机氟

该方法基于用甲醇对样品进行超声波浴提取，萃取液在燃烧装置中与氧气一起燃烧，产生的氢氟酸被收集到吸收液中，然后可以使用 IC 分析氟含量。

28 N-(Hydroxymethyl)acrylamide

The method is based on an extraction of samples with water. The extract is analysed by LC-DAD.

N-（羟甲基）丙烯酰胺

该方法以水提取样品为基础，提取物通过 LC-DAD 进行分析。

29 Colour fastness

In all the colour fastness tests cited below only the fastness grades with respect to staining of the adjacent fabrics are determined. The basic methods for the performing and evaluating the test are ISO 105-A01 and ISO 105-A03. More specifically, following tests are performed:

- Determination of colour fastness to water according to ISO 11642
- Determination of colour fastness to rubbing according to ISO 11640
- Determination of colour fastness to saliva according to ISO 105-A01
- Determination of colour fastness to perspiration according to ISO 11641

色牢度

在下文提及的所有色牢度测试中，仅测定衬贴织物沾色的色牢度等级。执行和评估测试的基本方法依据是 ISO 105-A01 和 ISO 105-A03。更具体的说，执行以下测试：

- 按照 ISO 11642 进行的耐水色牢度测定
- 按照 ISO 11640 进行的耐干摩擦色牢度的测定
- 按照 ISO 105-A01 进行的耐唾液色牢度的测定
- 按照 ISO 11641 进行的耐汗液色牢度的测定

30 Odour

A sample of defined area is conditioned in a desiccator of set humidity and the odour formed is evaluated sensory by a set of test persons.

30.1 Odour test on the other articles

All articles are subjected to a preliminary odour test, which, if failed, stops the certification procedure. The odour from mould, high boiling fractions of petrol (from colour printing), fish (from permanent finishing) or aromatic hydrocarbons will induce a test failure. Moreover, odorants (perfumes) used for removing or covering the smell of a textile material originating from its production (oil, fats, dyestuffs) must not be detected during sensory odour testing.

气味

将确定范围内的样品放入湿度已设定的干燥器中进行调节，所形成的气味由一组测试人员通过感官进行评估。

对其他物品进行气味测试

所有的产品都要经过初步的气味测试，如未能通过测试，则认证程序将停止。霉菌、高沸汽油馏分（彩色印刷）、鱼腥（来自永久整理）或芳香烃的气味会导致测试失败。此外，在感官气味测试过程中，不得检出用于去除或掩盖纺织原料（油、脂肪、染料）气味的气味剂（香精）。