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Footwear - Critical Substances Potentially Present in Footwear and Footwear Components - Determination of Organotin Compounds in Footwear Materials

(ISO/TS 16179:2012, IDT)

鞋类 鞋类和鞋类部件中存在的限量物质 有机锡的测定

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard's translation equivalently adopts ISO/TS 16179:2012 *Footwear - Critical Substances Potentially Present in Footwear and Footwear Components - Determination of Organotin Compounds in Footwear Materials*.

Chinese document that has consistent relationship with the international document in the normative references of this Standard is as follows:

--- GB/T 6682-2008 Water for Analytical Laboratory Use - Specification and Test Methods (ISO 3696:1987, MOD).

Pay attention that some of the contents in this document may involve patents, the issuing authority of this document shall not assume the responsibility to identify these patents.

This Standard was proposed by China Light Industry Council.

This Standard shall be under the jurisdiction of National Technical Committee for Standardization of Footwear (SAC/TC 305).

Drafting organizations of this Standard: Zhejiang Red Dragonfly Footwear Co., Ltd., China Leather and Footwear Industry Research Institute, China National Measuring Science Research Institute, Dongguan Xihuwei Industry Co., Ltd., Jinhou Group Weihai Footwear Co., Ltd., and China Leather and Footwear Industry Research Institute (Jinjiang) Co., Ltd..

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Footwear - Critical Substances Potentially Present in Footwear and Footwear Components – Determination of Organotin Compounds in Footwear Materials

1 Scope

This Technical Specification specifies a test method for determining the presence of organotin compounds. This test method is applicable to all types of footwear materials.

NOTE: ISO/TR 16178 defines which materials are concerned by this determination.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

ISO 3696 Water for Analytical Laboratory Use - Specification and Test Methods

3 Principle

The organotin substances are extracted from the footwear material with a methanol-ethanol mixture, in a medium-strength acidic condition, using tropolone as a complexant agent.

The polar and high-boiling organotin is then converted to the corresponding volatile tetra-alkyl derivative, by reaction with sodium tetraethylborate, $\text{NaB}(\text{Et})_4$. Finally, it is detected by a gas chromatograph fitted with a mass selective detector (GC-MS).

Table 1 indicates the list of target compounds which can be analysed with this Technical Specification.

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