
**Footwear — Critical substances
potentially present in footwear
and footwear components —
Determination of phenol in footwear
materials**

*Chaussures — Substances critiques potentiellement présentes dans
les chaussures et les composants de chaussure — Détermination du
phénol dans les matériaux de chaussure*

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Foreword

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This document was prepared by Technical Committee ISO/TC 216, *Footwear*.

Footwear — Critical substances potentially present in footwear and footwear components — Determination of phenol in footwear materials

WARNING — The user of this document should have work experience in a formal laboratory. This document does not indicate all possible safety issues. Users are responsible for taking appropriate safety and health practices.

1 Scope

This document specifies a method to determine the amount of phenol in footwear and footwear components. It is applicable to all parts of footwear except for metal parts.

NOTE ISO/TR 16178:2012, Table 1 defines which materials are included in this determination.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4787, *Laboratory glassware — Volumetric instruments — Methods for testing of capacity and for use*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

The sample is cut in small pieces and extracted with a mixture of toluene/acetone (80/20) percent by volume, in a sealed vial at 60 °C in an ultrasonic bath for 1 h.

The extract is analysed by gas chromatography/mass spectrometry (GC-MS).

The method uses an extraction surrogate (Phenol-D6), added just before the extraction step and quantified similar to a target compound. It is required to check the extraction efficiency and to calculate a recovery rate.

Anthracene-D10 is used as the internal standard and is added to the vial (sample and calibration) just before the chromatographic analysis. It is also used to make the calibration curve.