

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

चमड़े के रासायनिक परीक्षण की पद्धतियाँ –
भाग 15 एथोक्सिलेटेड एल्काइलफेनोल्स (एपीईओ) का निर्धारण
अनुभाग 1: प्रत्यक्ष विधि

Draft Indian Standard

**Methods of Chemical Testing of Leather —
Part 15 Determination of Ethoxylated Alkylphenols (APEO)
Sec 1: Direct method**

(ICS 59.140.30)

**Leather, Tanning Materials and Allied Products,
CHD 17**

Last Date for Comments: 19-03-2024

Leather, Tanning Materials and Allied Products, CHD 17

NATIONAL FOREWORD

(Formal clause shall be added later)

Nonylphenol ethoxylate belongs to the non-ionic surfactants. The biodegradation of nonylphenol ethoxylate releases the persistent pollutant, the branched nonylphenol. Nonylphenol is a hormonal acting substance that is toxic for waterborne organisms and many other organisms. For this reason, the release of nonylphenol ethoxylate into the environment should be avoided.

This standard is a method for determining ethoxylated alkylphenols (APEO) [nonylphenol ethoxylate (NPEOn, where $2 \leq n \leq 16$) and octylphenol ethoxylate (OPEOn, where $2 \leq n \leq 16$)] in leather. This direct method is especially suitable when a larger number of leather samples are to be checked for the presence of ethoxylated alkylphenols.

This method requires the use of liquid chromatography (LC) with a triple quadrupole mass spectrometer (MS/MS) to identify and quantify the ethoxylated alkylphenols.

The committee further decided to publish the adopted/harmonized standards in the following manner:

- a) Wherever an existing test method prescribed in IS 582 is being replaced by the corresponding ISO/IULTCS test method, the relevant part will be published with the information in the national foreword about the method of IS 582 being superseded.
- b) When a new test method is being incorporated in IS 582, the same will be published as a new standard and as subsequent part of IS 582.

This Part of IS 582 prescribes a direct method for determination of Ethoxylated Alkylphenols in leather. The other parts of this standard are:

- Part 1 Determination of volatile matter
- Part 2 Determination of water-soluble matter, water soluble inorganic matter and water-soluble organic matter
- Part 3 Determination of sulphate total ash and sulphated water-insoluble ash
- Part 4 Determination of free formaldehyde in process auxiliaries
- Part 5 Determination of certain azo colourants in dyed leather
 - Sec 1 Certain aromatic amine derived from azo colourants
 - Sec 2 4-aminoazobenzene
- Part 6 Determination of metal content
 - Sec 1 Extractable metals
 - Sec 2 Total metal content
- Part 7 Quantitative analysis of tanning agents by filter method
- Part 8 Determination of the Preservative (TCMTB, PCMC, OPP, OIT) Content in Leather by Liquid Chromatography
 - Sec 1 Acetonitrile extraction method (Under WC with doc no. CHD 17/24036))
 - Sec 2 Artificial perspiration extraction method (Under WC with doc no. CHD 17/24050)
- Part 9 Determination of pH and difference figure
- Part 10 Determination of chromic oxide
 - Sec 1 Quantification by titration
 - Sec 3 Quantification by atomic absorption spectrometry
 - Sec 4 Quantification by inductively coupled plasma (ICP)
- Part 11 Determination of chromium (VI) content
 - Sec 1 Colorimetric method
 - Sec 2 Chromatographic method
- Part 12 Determination of nitrogen content and hide substance by titrimetric method
- Part 13 Determination of total silicon content by reduced molybdosilicate spectrometric method
- Part 14 Determination of matter soluble in dichloromethane and free fatty acid content
- Part 15 Determination of Ethoxylated Alkylphenols
 - Sec 2: Indirect method (Under WC with doc no. CHD 17/24674)

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions and terminologies are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 4044 Leather — Chemical tests — Preparation of chemical test samples	IS 16256: 2022 Leather — Chemical Tests — Preparation of Chemical Test Samples	Identical under dual numbering with ISO 4044:2017

The technical committee has reviewed the provisions of the following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard.

<i>International Standard No</i>	<i>Title</i>
ISO 2418	Leather — Chemical, physical, mechanical and fastness tests — Position and preparation of specimens for testing
ISO 3696	Water for analytical laboratory use — Specification and test methods

In this adopted standard, reference appears to certain International Standards where the standard atmospheric conditions to be observed are stipulated which are not applicable to tropical/subtropical countries. The applicable standard atmospheric conditions for Indian conditions are (27 ± 2) °C and (65 ± 5) percent, relative humidity and shall be observed while using this standard.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2: 2022 'Rules for rounding off numerical values (*second revision*)'.