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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 33285.2-2024

Replacing GB/T 33285-2016

**Leather and fur - Determination of alkylphenols and ethoxylated
alkylphenols - Part 2: Indirect method**

皮革和毛皮 烷基酚及烷基酚聚氧乙烯醚的测定 第2部分：间接法

(English Translation)

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Table of Contents

Foreword
Introduction
1 Scope
2 Normative references
3 Terms and definitions
4 Principle
5 Reagents and Materials

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 2 of GB/T 33285 "Determination of alkylphenols and alkylphenol polyoxyethylene ethers in leather and fur".

The following parts have been published.

--- Part 2: Indirect method.

This document replaces GB/T 33285-2016 "Determination of nonylphenol and nonylphenol polyoxyethylene ether content in chemical tests for leather and fur" Compared with GB/T 33285-2016, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

--- The types of alkylphenol polyoxyethylene ethers that can be measured by the standard have been increased, and the scope of application of the standard has been expanded (see Chapter 1, 2016 Edition Chapter 1 of);

--- The principle has been refined (see Chapter 4, Chapter 3 of the 2016 edition);

--- Added the types of alkylphenol and alkylphenol polyoxyethylene ether standards (see Table 1);

--- Changed the mass concentration of alkylphenol and alkylphenol polyoxyethylene ether solution (see 5.11~5.14, 4.10 and 4.11 of the 2016 edition);

--- Added internal standard solution (see 5.15, 5.16);

--- Deleted "oil bath", "pipette", "flat-bottom flask" and "glass fiber filter" and other

instruments and equipment (see the 2016 edition Chapter 5);

--- Added materials and instruments such as "rapid quantitative filter paper" and "high performance liquid chromatograph" (see Chapter 5 and Chapter 6);

--- Change "conical flask with stopper, 100 mL" to "extraction flask, sealable" (see 6.8, 5.2 of the 2016 edition);

--- Changed the amount of sodium sulfate added during the extraction process, added the temperature control requirements for the ultrasonic generator and GC-MS analysis when adding the internal standard solution (see 8.1, 7.1 of the 2016 edition);

--- Added the preparation process of leather or fur processing additive sample solution (see 8.2);

--- The blank test has been changed (see 8.3, 7.7 of the 2016 edition);

--- Added high performance liquid chromatography analysis method (see 8.4.1.1);

--- Changed the amount of n-hexane added in the determination of alkylphenols, clarified the amount of sodium sulfate used, and added the Instructions for handling (see 8.4.1.2, 7.2 of the 2016 edition);

--- Changed the dosage and reflux time of aluminum iodide (see 8.4.2.2, 7.3 of the 2016 edition);

--- The drawing of standard working curve has been refined (see 8.6, 7.6 of the 2016 edition);

--- The calculation formula has been changed and the calculation formula of the internal standard method has been added (see 9.2~9.3, 7.8 of the 2016 edition);

--- Changed "detection limit" to "quantification limit" and changed the recovery requirement (see 10.1 and 10.3, 7.9 and Chapter 8 of the 2016 edition);

--- Changed the content of the test report (see Chapter 11, Chapter 9 of the 2016 edition).

This document is modified to adopt ISO 18218-2:2019 "Determination of alkylphenol polyoxyethylene ether in leather - Part 2: Indirect method".

Compared with ISO 18218-2:2019, this document has many structural adjustments. A comparison of the structural number changes between the two documents See Appendix A for the table.

This document has many technical differences compared to ISO 18218-2:2019.

A list of these technical differences and their reasons is given in Appendix B.

The following editorial changes were made to this document.

--- Changed the standard name;

- Added chemical formulas of some chemical substances;
- Change NPEO9 and OPEO10 to NPEO and OPEO;
- Deleted the note on n-hexane;
- Added chapter and article numbers for some contents;
- Changed the description of the detector in HPLC and added the qualitative wavelength of the DAD detector;
- Added description of GC and MS parameters;
- Deleted the example of GC column.

Introduction

Alkylphenol polyoxyethylene ether (APEO) mainly refers to nonylphenol polyoxyethylene ether (NPEO) and octylphenol polyoxyethylene ether (OPEO).

It has good wetting, penetration, emulsification, dispersion, solubilization and washing effects and is widely used in the leather industry. Alkylphenol (AP) is APEO in it is an important degradation product under anaerobic conditions, with stronger toxicity and endocrine disrupting ability than the parent substance, and was listed as an "endocrine disruptor" by the European Union in 1996.

The EU Directive.2003/53/EC has clearly restricted the use, circulation and emission of APEO.

Relevant laws and regulations have also made clear limits on its use. With the continuous development of the leather and fur industry, people are paying more attention to the possible the alkylphenols and alkylphenol polyoxyethylene ethers contained in leather and fur are becoming more and more concerned.

It has gradually become the focus of product quality control. GB/T 33285 is intended for the determination of alkylphenols and alkylphenol polyoxyethylene ethers in leather and fur.

Provide the basis, which is planned to consist of two parts.

--- Part 1: Direct method. The purpose is to establish a test method for the direct determination of AP and APEO in leather and fur.

--- Part 2: Indirect method. The purpose is to establish the method of first cracking APEO into AP and then determining the APEO content by detecting the AP content.

experiment method.

At present, the determination of AP and APEO in leather and fur in my country mainly adopts the indirect method, that is, APEO is first cracked into AP, and then detected by AP content and APEO content determination, only involves the determination of nonylphenol

(NP) and nonylphenol polyoxyethylene ether (NPEO) in leather and fur.

It does not involve the determination of octylphenol (OP) and octylphenol polyoxyethylene ether (OPEO), and has no specific application in the extraction method, analysis method and result calculation.

There are significant technical differences between the current international standard ISO 18218-2:2019 and other aspects. In view of this, it is necessary to revise it.

Improve to continuously adapt to new changes in domestic and foreign products and new requirements for product testing, improve consistency with international standards, and ensure standards and Coordinated industry development.

Leather and fur alkylphenols and alkylphenol polyoxyethylene ethers Determination Part 2: Indirect method

1 Scope

This document describes the determination of alkylphenols (nonylphenols) in leather and fur by high performance liquid chromatography (HPLC) and gas chromatography-mass spectrometry (GC-MS).

Test method for alkylphenol ethoxylates (nonylphenol ethoxylates and octylphenol ethoxylates) and alkylphenol ethoxylates (nonylphenol ethoxylates and octylphenol ethoxylates).

This document is applicable to the determination of alkylphenols and alkylphenol polyoxyethylene ethers in leather, fur and their products.

This document is also applicable to the determination of alkylphenols and alkylphenol polyoxyethylene ethers in leather and fur processing additives.

Note: The extraction solvents used in the method specified in this document (indirect method) and the direct method are different, so the test results of the two methods may have similar trends, but they are not Absolutely the same.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 6682 Specifications and test methods for water used in analytical laboratories (GB/T 6682-2008, ISO 3696:1987, MOD) GB/T 39364 Sampling locations for chemical, physical,