INTERNATIONAL STANDARD

ISO 19619

First edition
2018-01

Surface active agents — Determination of free propylene oxide content in propylene oxide adduct surfactants — GC method

Agents de surface tensioactifs — Détermination de la teneur en oxyde de propylène libre dans les produits d'addition à base d'oxyde de propylène — Méthode de chromatographie en phase gazeuse (GC)

Reference number
ISO 19619:2018(E)

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Foreword

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This document was prepared by Technical Committee ISO/TC 91, *Surface acting agents*.

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Surface active agents — Determination of free propylene oxide content in propylene oxide adduct surfactants — GC method

WARNING — The use of this document can involve hazardous materials, operations and equipment. It does not purport to address all of the safety or environmental problems associated with its use. It is the responsibility of users of this standard to take appropriate measures to ensure the safety and health of personnel and the environment prior to application of the standard, and fulfil statutory and regulatory requirements for this purpose.

1 Scope

This document specifies an analytical procedure for the determination of free propylene oxide in surfactants which are synthesized from propylene oxide copolymers.

The method is appropriate for the qualitative and quantitative determination of propylene oxide groups in propylene oxide adducts, polyethers and polyglycol esters by headspace gas chromatography (HS-GC) with a flame ionization detector (FID) based on external procedure. Gas chromatography-mass spectrometry (GC-MS) is used for the confirmatory purposes.

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 607, *Surface active agents and detergents — Methods of sample division*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principles

The sample is weighed into a headspace vial and the sealed vial is placed in a head space sampling instrument and allowed to reach thermal equilibrium. A portion of the vapour phase is then analysed by temperature programmed gas chromatography (GC). Qualitative detection is determined by retention time of target compounds with FID or by relative abundance ratios of the fragment ions with MSD. Quantification is achieved by external quantification method for GC-FID.

5 Reagents

During the analysis, use only reagents of recognized analytical grade.

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