
**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)*

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Foreword

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

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

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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.