ICS 59.080.01

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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB/T 23322–2009

Textiles—Determination of surfactant—Alkylphenol ethoxylates

纺织品　表面活性剂的测定

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Issued on March 19, 2009 **Implemented on January 01, 2010**

Issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Standardization Administration of the People's Republic of China

Contents

Foreword

Annex A, Annex B and Annex C of this Standard are informative annex.

This Standard is proposed by China Textile Industry Association

This Standard is under the jurisdiction of Basic Standard Subcommittee of National Technical Committee (SAC/TC 209/SC1) on Textiles of Standardization Administration of China.

The responsible drafting organizations are Zhejiang Entry-Exit Inspection and Quarantine Bureau of P.R. China, Zhejiang Sci-Tech University, National Textile Quality Supervision Testing Center and Shenzhen Entry-Exit Inspection and Quarantine Bureau of P.R. China

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Textiles—Determination of surfactant—Alkylphenol ethoxylates

Warning——The personnel who use this Standard shall have practical experience in formal laboratory. This Standard does not indicate all possible security issues. The user has the responsibility to take appropriate safety and health measures, and ensure to comply with the conditions laid down by the relevant state laws and regulations.

1 Scope

This Standard specifies the reversed-phase high-performance liquid chromatography (reversed-phase HPLC) screening method, the normal-phase high-performance liquid chromatography (normal-phase HPLC) detection method and liquid chromatography - tandem mass spectrum (LC-MS/MS) detection method of alkylphenol ethoxylates (AP*n*EO, *n* = 2-16) in the textile.

This Standard is applicable to all kinds of textile products.

Notes: The molecular structure general formula of AP*n*EO is: R-C_5H_4-$(OC_2H_4)_n$ OH. The AP*n*EO in this standard refers to common octyl phenol polyoxyethylene [OP*n*EO,C_8H_{17}-C_5H_4,-$(OC_2H_4)_n$OH] and nonyl phenol polyoxyethylene [NP*n*EO,C_9H_{19}-C_6H_4,-$(OC_2H_4)_n$OH].

2 Principle

As the extraction solvent, methanol was extracted the AP*n*EO from the test sample with the Soxhlet extraction method, then the extracting solution is concentrated and purified, use a high-performance liquid chromatograph equipped with a fluorescence detector to detect, or apply liquid chromatography - tandem mass spectrum to detect, using external standard method to quantitate.

3 Reagent and standard solution

Unless otherwise specified, reagent used in this method is analytically pure, and water is deionized water.

3.1 Methanol (HPLC-grade).

3.2 Acetonitrile (HPLC-grade).

3.3 Normal hexane (HPL-grade).

3.4 Isopropyl alcohol (HPLC-grade).

3.5 Dichloromethane.

3.6 Methanol - water solution: Accurately measuring 300mL of methanol and 200mL of water, mixing for standby application.

3.7 Methanol - dichloromethane solution: Accurately measuring 100mL of methanol and 400mL of dichloromethane, mixing for standby application.

3.8 Standard substance of octaphenyl polyoxyethyiene: OP*n*EO, The average degree of polymerization n=9, guarantee reagent.

3.9 Standard substance of nonylphenol polyoxyethylene ether: NP*n*EO, The average degree of polymerization n=9, purity ≥ 99%.

3.10 Alkylphenol ethoxylates standard stock solution: Respectively weigh appropriate OP*n*EO (3.8) and NP*n*EO (3.9), with isopropanol, formulate the single component standard stock solution with concentration of 10mg/mL.

3.11 Reverse-phase HPLC and LC-MS/MS analytical standard working solution: Respectively pipette appropriate volume of OP*n*EO and NP*n*EO standard stock solution (3.10), dilute with methanol to prepare the blended standard working fluid with a desired concentration.

3.12 Normal-phase HPLC analytical standard working solution: Respectively pipette appropriate volume of OP*n*EO and NP*n*EO standard stock solution (3.10); dilute with isopropanol to prepare the single component standard working fluid with a desired concentration.

Notes: Standard solution is stored at below 4℃ in dark place. Standard stock solution is valid for 12 months, and standard working solution is valid for three months.

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