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

GB/T 44366-2024

**Determination of restricted lauryl alcohol polyether-9 in
cosmetics - Liquid chromatography tandem mass spectrometry**

化妆品中限用组分月桂醇聚醚-9的测定 液相色谱-串联质谱法

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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 is required. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Light Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Flavors and Fragrances and Cosmetics (SAC/TC 257). This document was drafted by: Shanghai Customs Animal and Plant and Food Inspection and Quarantine Technical Center, Nanjing Normal University, Shanghai Jahwa United Co., Ltd. Co., Ltd., Bayuquan Customs Comprehensive Technical Service Center. The main drafters of this document are: Wang Liangzi, Zhao Bo, Wang Chuanxian, Yang Zhenyu, Chen Niannian, Jiang Zhenjuan, Li Tao,

Lin Tianwen, Chen Zhitao, Han Li, Gu Yang. The restricted ingredient Laureth-9 in cosmetics Liquid chromatography-tandem mass spectrometry WARNING - Personnel using this document should have practical experience in formal laboratory work. This document does not purport to address all possible safety issues. The user is responsible for taking appropriate safety and health measures and ensuring that the conditions are in compliance with relevant national regulations.

1 Scope

GB/T 44366-2024 gives the Chinese LC-MS/MS method for determining laureth-9 in cosmetics, a restricted ingredient under the Chinese cosmetic safety regulation with a permitted maximum concentration. Its analysis is not routine: laureth-9 is not a single compound but a distribution of ethoxylated oligomers, so the method has to define what is being measured and quantify a family of related species reproducibly, in surfactant-rich matrices that are themselves full of similar molecules. The standard sets the principle, the reagents and apparatus, the sample preparation and extraction, the chromatographic separation of the oligomer distribution, the mass spectrometric conditions with the transitions used, the calibration approach and the summation used to report the total, the limits of detection and quantification, the calculation, the precision and the test report. It took effect on 23 August 2024, and for a manufacturer or an importer it is the method a compliance test will use.

This document describes the principle, reagents and materials, instrumental design and method for the determination of laureth-9 in cosmetics by liquid chromatography-tandem mass spectrometry. The contents include preparation, sample preparation and test steps, test data processing, recovery rate and precision, etc. This document is applicable to the determination of laureth9 content in cosmetics such as water-based agents, creams, lotions, and cleansing products. The detection limit of the method in this document is

1.0 mg/kg and the quantification limit is

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. in this document.

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4 Principle

The sample was vortexed with 70% methanol solution, ultrasonically extracted, and centrifuged to obtain the target test solution. Injection into liquid chromatography-tandem mass spectrometer, separation by liquid chromatography, detection by mass spectrometer, retention time and relative ion pair abundance of mass spectrometer. Qualitative, quantitative by external standard method.

5 Reagents and Materials

Unless otherwise specified, only analytical grade reagents were used.

5.1 Water. GB/T 6682, Grade 1.

5.2 Methanol. chromatographic grade.

5.3 Acetonitrile. chromatographic grade.

5.4 Acetic acid. chromatographic grade. 5.5 70% (volume fraction) methanol solution. Take 700 mL of methanol (5.2) and dilute to 1 L with water. 5.6 0.1% (volume fraction) acetic acid aqueous solution. Take

1.0 mL of acetic acid (5.4) and dilute to 1 L with water.

5.7 Laureth-

9 Standard product. purity not less than 95.0%, English name of Laureth-9, INCI name (International Cosmetic Institution See Table A.1 in Appendix A for material name), CAS number, molecular formula, relative molecular mass and chemical structure.

5.8 Standard stock solution. Accurately weigh 10 mg (accurate to

0.1 mg) of laureth-9 standard, dissolve it in methanol (5.2), and