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

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Determination of coumarin derivatives in cosmetics

牙膏中6-甲基香豆素、二氢香豆素、7-甲基香豆素、7-甲氧基香豆素、7-乙氧基-
4-甲基香豆素的测定 高效液相色谱法

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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 China Light Industry Federation. This document is under the jurisdiction of the National Technical Committee for Standardization of Oral Care Products (SAC/TC 492). This document was drafted by: Suzhou Shipu Testing Technology Co., Ltd., Suzhou Quality Inspection Science Research Institute, Suzhou Shipu Biotechnology (Suzhou) Co., Ltd., Suzhou Kernairui Testing Technology Co., Ltd., Guangzhou Shuke Industrial Co., Ltd., Guangzhou Quality Supervision and Inspection Institute, Heilongjiang Jiangxi Light Industry Science Research Institute, Jiangxi Chengzhi Daily Chemical Co., Ltd., Infinitus (China) Co., Ltd., Liuzhou Liangmianzhen Co., Ltd., Chongqing Dengkang

Oral Care Products Co., Ltd., Hebei Provincial Food Inspection Institute, Jiangsu Provincial Product Quality Supervision and Inspection Institute, Jiangsu Provincial Food and Drug Supervision and Inspection Institute, Perfect (Guangdong) Daily Necessities Co., Ltd., Tsinghua University, Hainan University, Shenzhen University, Suzhou University, Changzhou University, Changzhou Food and Drug Fiber Quality Supervision and Inspection Center, Suzhou Drug Inspection and Testing Research Center, Shandong Hua VEGETARIAN HEALTH CARE PRODUCTS LIMITED. The main drafters of this document are. Ye Jiarong, Lu Jian, Zhang Yan, Fang Fang, Li Jianxiang, Zheng Wei, Ye Zhuhong, Zhao Shanshan, Chen Minshan, Xu Haiyan, Gao Yan, Yang Weihao, Chen Xin, Xiao Junfang, Qin Tianyi, Liu Bin, Jie Li, Wu Yuluan, Dai Dan, Zhu Dandan, Wang Yi, Li Peisi, Zhang Yingyang, Hou Xiangchang, Song Shuwen, Nie Yanyan, Lu Yinghong, Jiang Lei, Gao Long, Gu Pan, Liu Qunlin, Gao Hongying, Zhu Yirong, Tang Wenjin. 6Methylcoumarin, dihydrocoumarin, 7Methylcoumarin, 7Methoxycoumarin, Determination of 7ethoxy4methylcoumarin High performance liquid chromatography 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

China's national method for determining a group of coumarin derivatives - 6-methylcoumarin, dihydrocoumarin, 7-methylcoumarin, 7-methoxycoumarin and related compounds - in cosmetics. Coumarins occur naturally in tonka bean, sweet clover and cassia, and are made synthetically as fragrance ingredients with a sweet hay-like note. Several are restricted or prohibited in cosmetics for two distinct reasons. Some are skin sensitisers, and several are photosensitisers - they are activated by sunlight to produce a reaction on skin that has been exposed, which is a particular concern in products applied to the face and left on. Others have been implicated in hepatotoxicity. Because they are used at low concentrations in complex fragrance mixtures whose composition is a trade secret, a manufacturer may not know which are present, and an analytical method that identifies them individually is what makes the restriction enforceable.

This document describes 6methylcoumarin, dihydrocoumarin, 7methylcoumarin, 7methoxycoumarin, 7ethoxy4methyl Principle, reagents and materials, instruments and equipment, experimental steps, result calculation, recovery rate and precision of high performance liquid chromatography determination of methylcoumarin Degree, allowable difference, etc. This document applies to 6methylcoumarin, dihydrocoumarin, 7methylcoumarin, 7methoxycoumarin, 7ethoxy4methyl Determination of methylcoumarins.

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

6 methylcoumarin, dihydrocoumarin, 7 methylcoumarin, 7 methoxycoumarin, 7 ethoxy 4 methylcoumarin in toothpaste After alcohol extraction, high performance liquid chromatography with diode array detector was used for detection, and the qualitative analysis was based on retention time and spectrum, and the quantitative analysis was based on external standard method.

5 Reagents and Materials

5.1 Unless otherwise specified, all reagents used are of chromatographic grade and water is first-grade water that meets the requirements of GB/T 6682.

5.3 Acetonitrile.

5.4 Phosphoric acid. analytical grade.

5.5 Formic acid. 5.6 0.1% (volume fraction) phosphoric acid solution. Take 1 mL of phosphoric acid (5.4), add 999 mL of water (5.1), and mix well. 5.7 20% (volume fraction) methanol solution. Accurately measure 20 mL of methanol (5.2), add water (5.1) to 100 mL, and mix well.