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STN	**Kozmetické výrobky Analytické metódy Metóda LC/UV na identifikáciu a kvantitatívne stanovenie 22 organických UV filtrov v kozmetických výrobkoch používaných v EÚ**	**STN EN 17156** 68 1674

Cosmetics - Analytical methods - LC/UV method for the identification and quantitative determination in cosmetic products of the 22 organic UV filters in use in the EU

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Cosmetics - Analytical methods - LC/UV method for the identification and quantitative determination in cosmetic products of the 22 organic UV filters in use in the EU

Cosmétiques - Méthodes analytiques - Procédé CL/UV pour l'identification et la détermination quantitative des 22 filtres UV organiques utilisés dans les produits cosmétiques au sein de l'UE

Kosmetische Mittel - Untersuchungsverfahren - LC/UV Verfahren für die Identifizierung und qualitative Bestimmung von den 22 in der EU verwendeten organischen UV-Filtern in kosmetischen Produkten

This European Standard was approved by CEN on 5 November 2018.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 17156:2018) has been prepared by Technical Committee CEN/TC 392 “Cosmetics”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2019 and conflicting national standards shall be withdrawn at the latest by June 2019.

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Introduction

In order to protect human skin from the deleterious UV radiation of sunlight, the so-called UV filters have been used as active ingredients in the formulation of sunscreen cosmetic products. These active compounds are of organic or inorganic nature, and have the capacity to absorb and/or reflect, respectively, this UV radiation. Nowadays, they are not only added to those cosmetics intended specifically for sun protection but also in all type of daily products such as moisturizers, after shave products, shampoos, anti-aging creams, make-up products, etc.

The compounds that can be used as UV filters in cosmetics and their maximum allowed concentrations are regulated in order to ensure user's safety. Currently, the European Union (EU) 1223/2009 Regulation permits the use of 27 compounds as UV filters [1], the names of which are listed in Table 1. Among these 27 UV filters, titanium dioxide and zinc oxide are of inorganic nature, and among the remaining 25, 7 are highly polar and can be grouped in the 'water-soluble' group, whereas the other 18 are low polar and can be grouped in the 'fat-soluble' group. All these compounds are included in the formulations of the different cosmetic products consumed in the EU framework, with the only exceptions of BCSA and PBC which are not being currently used.

Besides, errors during the manufacturing process of cosmetics may cause a lower concentration in the final product than that formulated. This might affect the efficacy of the product since the real Sun Protection Factor could be lower than that labelled.

Therefore, reliable and practical analytical methods are needed in order to ensure compliance with the EU Regulation and thus protect user's safety, but also to ensure product's efficacy.

In this sense, with the aim of implementing a broad-spectrum analytical method to improve and facilitate the quality control of the cosmetic industry, this European Standard presents an analytical method for the quantification of 22 organic UV filters. They constitute all the organic UV filters allowed and in use in the EU when this standard was validated. Note that TBT is not included since it was later approved. The presented method, besides good analytical characteristics, is simple, low cost, rapid and both user- and environmentally-friendly. The method is based on different analytical methods previously published by the Research Group on Quality Control of Cosmetic Products of the University of Valencia [2], [3].

Table 1 — List of the UV filters permitted in cosmetic products under the EU Regulation

EU Reference number [a]	Name of Common Ingredients Glossary [b]	Acronym [c]
2	Camphor Benzalkonium Methosulfate	CBM
3	Homosalate	HMS
4	Benzophenone-3	BZ3
6	Phenylbenzimidazole Sulfonic Acid	PBSA
7	Terephthalylidene Dicamphor Sulfonic Acid	TDSA
8	Butyl Methoxydibenzoylmethane	BMDM
9	Benzylidene Camphor Sulfonic Acid	BCSA
10	Octocrylene	OC
11	Polyacrylamidomethyl Benzylidene Camphor	PBC
12	Ethylhexyl Methoxycinnamate	EHMC
13	PEG-25 PABA	P25
14	Isoamyl p-Methoxycinnamate	IMC
15	Ethylhexyl Triazone	EHT
16	Drometrizole Trisiloxane	DTS
17	Diethylhexyl Butamido Triazone	DEBT
18	4-Methylbenzylidene Camphor	MBC
20	Ethylhexyl Salicylate	EHS
21	Ethylhexyl Dimethyl PABA	EHDP
22	Benzophenone-4	BZ4
23	Methylene Bis-Benzotriazolyl Tetramethylbutylphenol	MBBT
24	Disodium Phenyl Dibenzimidazole Tetrasulfonate	PDTA
25	Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine	BEMT
26	Polysilicone-15	P15
27	Titanium Dioxide	TiO_2
28	Diethylamino Hydroxybenzoyl Hexyl Benzoate	DHHB
29	Tris-biphenyl triazine	TBT
30	Zinc Oxide	ZnO

[a] Order number given according to the EU 1223/2009 Regulation.

[b] According to the Annex VI of the European Union (EU) 1223/2009 Regulation.

[c] Acronyms used in this standard.

1 Scope

This document specifies an analytical method, based on liquid-chromatography (LC) with ultraviolet/visible spectrometry (UV/Vis) detection for the detection and quantitative determination of 22 organic UV filters in use in the EU framework. This method has been validated for emulsion-based cosmetic products, lip-balms, lotions and waters.

2 Normative references

There are no normative references in this document.