Determination of sunscreen UVA photoprotection in vitro (ISO 24443:2012)

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 24443:2012 sisaldab Euroopa standardi EN ISO 24443:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 24443:2012 consists of the English text of the European standard EN ISO 24443:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.06.2012.	Date of Availability of the European standard is 01.06.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Determination of sunscreen UVA photoprotection in vitro (ISO 24443:2012)

Détermination in vitro de la photoprotection UVA (ISO 24443:2012)

In vitro Bestimmung des UVA-Schutzes von Sonnenschutzmitteln (ISO 24443:2012)

This European Standard was approved by CEN on 24 May 2012.

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Foreword

This document (EN ISO 24443:2012) has been prepared by Technical Committee ISO/TC 217 "Cosmetics" in collaboration with 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of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

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Endorsement notice

The text of ISO 24443:2012 has been approved by CEN as a EN ISO 24443:2012 without any modification.

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1 Scope

This International Standard specifies an *in vitro* procedure to characterize the UVA protection of sunscreen products. Specifications are given to enable determination of the spectral absorbance characteristics of UVA protection in a reproducible manner.

In order to determine relevant UVA protection parameters, the method has been created to provide a UV spectral absorbance curve from which a number of calculations and evaluations can be undertaken. Results from this measurement procedure can be used for other computations, as required by local regulatory authorities. These include calculation of the Ultraviolet-A protection factor (UVAPF) [correlating with *in vivo* UVAPF from the persistent pigment darkening (PPD) testing procedure], critical wavelength and UVA absorbance proportionality. These computations are optional and relate to local sunscreen product labelling requirements. This method relies on the use of *in vivo* SPF results for scaling the UV absorbance curve.

This International Standard is not applicable to powder products such as pressed powder and loose powder products.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
***in vitro* UVA protection factor**
UVAPF
in vitro UVA protection factor of a sun protection product against UVA radiation, which can be derived mathematically with *in vitro* spectral modelling

2.2
***in vitro* calculation of SPF**
$SPF_{in\ vitro}$
protection factor of a sun protection product against erythema-inducing radiation calculated with spectral modelling

2.3
action spectrum for erythema
$E(\lambda)$
relative effects of individual spectral bands of an exposure source for an erythema response

NOTE See References [1] and [2].

2.4
action spectrum for PPD
$P(\lambda)$
relative effects of individual spectral bands of an exposure source for a persistent pigment response

NOTE See References [3] and [4].

2.5
monochromatic absorbance
A_λ
sunscreen absorbance at wavelength, λ, related to the sunscreen transmittance, T_λ, by

$$A_\lambda = -\log(T_\lambda)$$

where transmittance, T_λ, is the fraction of incident irradiance transmitted by the sunscreen film