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BS EN ISO 24443:2012



BSI Standards Publication

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

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The UK participation in its preparation was entrusted to Technical Committee CW/217, Cosmetics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

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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EUROPEAN COMMITTEE FOR STANDARDIZATION
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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of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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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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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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Determination of sunscreen UVA photoprotection *in vitro*

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