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Cosmetics — Analytical methods — Nitrosamines: Detection and determination of *N*-nitrosodiethanolamine (NDELA) in cosmetics by HPLC, post- column photolysis and derivatization

Cosmétiques — Méthodes analytiques — Nitrosamines: Recherche et dosage de la N-nitrosodéthanolamine (NDELA) dans les cosmétiques par CLHP, photolyse et dérivation post-colonne



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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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Contents

Page

Foreword	iv
Introduction.....	v
1 Scope	1
2 Principle.....	1
3 Reagents.....	1
4 Apparatus	2
5 Sample preparation and storage	3
5.1 General	3
5.2 Standards preparation	4
5.2.1 Primary stock solution.....	4
5.2.2 Secondary stock solution.....	4
5.2.3 Working solutions	4
5.3 Sample preparation	4
5.3.1 General	4
5.3.2 SPE clean-up	5
5.3.3 Alternative sample preparation for samples non-dispersible in water (DCM clean-up)	5
6 Procedure	5
6.1 General	5
6.2 Chromatographic conditions	5
6.3 Set-up of the reaction system	6
7 Calculation of results	6
7.1 Calibration curve	6
7.2 Experimental conditions for the validity of the measurement.....	6
7.3 Calculation of concentrations.....	6
8 Test report.....	7
Annex A (informative) Examples of calibration curves and typical chromatograms	8
Annex B (normative) Photolysis and reaction of nitrite with Griess reagent to form the azo dye.....	11
Annex C (normative) Configuration of the post-column reactor system.....	12
Bibliography.....	13

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.

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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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Introduction

Human exposure to *N*-nitrosamines can occur through diverse sources such as the environment, food or personal care products. As a result of their perceived carcinogenic potential on several animal species, minimization of exposure to *N*-nitrosamines is recognized as important to the preservation of human health. Among *N*-nitrosamines, *N*-nitrosodiethanolamine (NDELA) has been recognized as a potential contaminant of cosmetics.

In this context, several analytical methods have been developed to detect and determine the presence of NDELA in cosmetics. Examples of these methods are gas chromatography/thermal energy analysis, and high performance liquid chromatography coupled either with a mass spectrometry determination or with photolysis and colorimetric quantification. The latter method uses specific technology to ensure specificity towards NDELA, to minimize the risk of artefactual formation of the analyte of interest and to allow precise quantification.

This analytical method uses High Performance Liquid Chromatography (HPLC) coupled with post-column photolysis and derivatization, in order to separate and detect trace levels of NDELA from a cosmetic ingredient or product matrix with specificity for NDELA.

This International Standard refers to a collaborative study (Reference [2]) involving seven laboratories and published in 2006. Validation criteria are given in Reference [2].