

---

---

**Textiles — Methods for determination  
of certain aromatic amines derived  
from azo colorants —**

**Part 1:  
Detection of the use of certain azo  
colorants accessible with and without  
extracting the fibres**

*Textiles — Méthodes de détermination de certaines amines  
aromatiques dérivées de colorants azoïques —*

*Partie 1: Détection de l'utilisation de certains colorants azoïques  
accessibles avec ou sans extraction*



This document is a preview generated by EBS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

Page

<b>Foreword</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
<b>4 General</b>	<b>1</b>
<b>5 Principle</b>	<b>3</b>
<b>6 Safety precautions</b>	<b>3</b>
<b>7 Reagents</b>	<b>3</b>
<b>8 Apparatus</b>	<b>4</b>
<b>9 Test specimen sampling and preparation</b>	<b>6</b>
9.1 General	6
9.2 Textile article	6
9.3 Fibre composition	6
9.4 Case of the fibre blends	7
9.5 Coloured materials with pigments	7
9.6 Colours	7
9.6.1 General	7
9.6.2 Case of colour gathering	7
9.6.3 Preparation of the three colour test specimen	8
<b>10 Procedure</b>	<b>8</b>
10.1 Colorant extraction for disperse dyes with xylene	8
10.2 Textiles coloured with pigments and/or dyed with colorants other than disperse dyes	8
10.3 Reductive cleavage	8
10.4 Separation and concentration of the amines	8
10.5 Amine detection and quantification	9
10.5.1 Detection of aniline and 1,4-phenylenediamine (indicators of 4-aminoazobenzene)	9
10.5.2 In relation to quantification equipment / other sources of false positive results	9
10.6 Check procedure	10
10.6.1 General	10
10.6.2 Calibration using internal standard (quantification performed by gas chromatography)	10
10.6.3 Calibration without internal standard	11
10.6.4 Amine recovery	11
<b>11 Evaluation</b>	<b>11</b>
11.1 General	11
11.2 Calculation of amine in the sample	12
11.3 Reliability of the method	12
<b>12 Test report</b>	<b>12</b>
<b>Annex A (informative) Chromatographic analyses</b>	<b>13</b>
<b>Annex B (informative) Reliability of the method</b>	<b>17</b>
<b>Annex C (informative) Assessment guide — Interpretation of analytical results</b>	<b>19</b>
<b>Annex D (informative) Explanatory table of dyestuffs used in various textile materials</b>	<b>25</b>
<b>Annex E (informative) Procedure for liquid/liquid extraction without diatomaceous earth</b>	<b>26</b>
<b>Annex F (normative) Colorants — Methods for determination of certain aromatic amines</b>	<b>29</b>
<b>Annex G (informative) Pigments</b>	<b>30</b>

<b>Bibliography .....</b>	<b>32</b>
---------------------------	-----------

This document is a preview generated by EVS

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by the European Committee Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in collaboration with ISO Technical Committee TC 38, *Textiles*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 14362-1 cancels and replaces ISO 24362-1:2014, which has been technically revised.

The following is a list of the major technical changes between this edition and ISO 24362-1:2014:

- addition of a new [Clause 3](#) and renumbered;
- changes to [Clause 5](#) "Principle," where the combined method has been removed as it had been found that results were not accurate in certain cases;
- changes to [Clause 9](#) "Test specimen sampling and preparation" to be more explanatory;
- changes to [Clause 10](#) "Procedure" to improve the method, including using xylene as substitute for chlorobenzene (reasons: lower toxicity and lower adverse environmental effect of xylene);
- extension of [Annex C](#) "Assessment guide — Interpretation of analytical results" to give examples for false-positive results, suggested procedures and suggested comments in test report;
- addition of [Annex G](#) "Pigments."

A list of all parts in the ISO 14362 series can be found on the ISO website.



# Textiles — Methods for determination of certain aromatic amines derived from azo colorants —

## Part 1:

## Detection of the use of certain azo colorants accessible with and without extracting the fibres

### 1 Scope

This document describes a method to detect the use of certain azo colorants that may not be used in the manufacture or treatment of certain commodities made of textile fibres and that are accessible to reducing agent with and without extraction.

Azo colorants accessible to reducing agent without extraction are those used to colour with pigments or to dye

- cellulosic fibres (e.g. cotton, viscose),
- protein fibres (e.g. wool, silk), and
- synthetic fibres (e.g. polyamide, acrylic).

Azo colorants accessible with extraction are those used to dye man-made fibres with disperse dyes. The following man-made fibres can be dyed with disperse dyes: polyester, polyamide, acetate, triacetate, acrylic and chlorofibre.

The method is relevant for all coloured textiles, e.g. dyed, printed and coated textiles.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

### 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 4 General

Certain azo colorants may release, by reductive cleavage of azo group(s), one or more of the following aromatic amines.