

INTERNATIONAL  
STANDARD

ISO  
13794

First edition  
1999-07-15

---

**Ambient air — Determination of asbestos  
fibres — Indirect-transfer transmission  
electron microscopy method**

*Air ambiant — Dosage des fibres d'amiante — Méthode par microscopie  
électronique à transmission par transfert indirect*



Reference number  
ISO 13794:1999(E)

## Contents

	Page
<b>1 Scope .....</b>	<b>1</b>
<b>1.1 Substance determined .....</b>	<b>1</b>
<b>1.2 Type of sample .....</b>	<b>1</b>
<b>1.3 Range .....</b>	<b>1</b>
<b>1.4 Limit of detection .....</b>	<b>1</b>
<b>2 Terms and definitions .....</b>	<b>2</b>
<b>3 Abbreviated terms .....</b>	<b>6</b>
<b>4 Principle .....</b>	<b>6</b>
<b>5 Apparatus .....</b>	<b>7</b>
<b>5.1 Air sampling .....</b>	<b>7</b>
<b>5.2 Specimen preparation laboratory .....</b>	<b>8</b>
<b>5.3 Equipment for analysis .....</b>	<b>8</b>
<b>5.4 Consumable supplies .....</b>	<b>13</b>
<b>6 Reagents .....</b>	<b>14</b>
<b>7 Air sample collection .....</b>	<b>14</b>
<b>7.1 Calculation of analytical sensitivity .....</b>	<b>14</b>
<b>7.2 Sample collection procedure .....</b>	<b>15</b>
<b>8 Procedure for analysis .....</b>	<b>15</b>
<b>8.1 General .....</b>	<b>15</b>
<b>8.2 Cleaning of sample cassettes .....</b>	<b>16</b>
<b>8.3 Preparation of analytical filters .....</b>	<b>16</b>
<b>8.4 Preparation of TEM specimens from PC analytical filters .....</b>	<b>17</b>

© ISO 1999

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland  
Internet iso@iso.ch

Printed in Switzerland

8.5 Preparation of TEM specimens from cellulose ester analytical filters .....	19
8.6 Criteria for acceptable TEM specimen grids.....	20
8.7 Procedure for structure counting by TEM .....	21
8.8 Blank and quality control determinations .....	24
8.9 Calculation of results .....	25
9 Performance characteristics .....	25
9.1 General .....	25
9.2 Interferences and limitations of fibre identification.....	25
9.3 Precision and accuracy.....	26
9.4 Limit of detection.....	26
10 Test report.....	27
Annex A (normative) Determination of operating conditions for plasma ashing.....	30
Annex B (normative) Determination and standardization of operating conditions for ultrasonic bath.....	31
Annex C (normative) Calibration procedures .....	33
Annex D (normative) Structure-counting criteria .....	36
Annex E (normative) Fibre identification procedure.....	44
Annex F (normative) Determination of concentrations of asbestos fibres and bundles longer than 5 µm, and of PCM-equivalent asbestos fibres .....	53
Annex G (normative) Calculation of results .....	54
Annex H (normative) Test procedure to determine suitability of cellulose ester sample collection filters....	60
Annex I (informative) Strategies for collection of air samples .....	61
Bibliography.....	62