

This is a preview of ISO 10397:1993. [Click here to purchase the full version from the ANSI store.](#)

First edition
1993-08-01

**Stationary source emissions —
Determination of asbestos plant
emissions — Method by fibre count
measurement**

*Émissions de sources fixes — Détermination des émissions par des
usines d'amiante — Méthode par comptage des fibres*



Reference number
ISO 10397:1993(E)

Contents

	Page
1 Scope	2
2 Normative references	2
3 Definitions	2
4 Symbols with their corresponding units and subscripts	3
5 Principle	3
6 Summary of method	3
7 Apparatus	4
7.1 General	4
7.2 List of apparatus	6
7.3 Sampling probe (including nozzle and fibre collector)	6
7.4 Sampling rate and volume	7
7.5 Flow and temperature measurement in the duct	8
8 Facilities at the sampling site	8
8.1 General	8
8.2 Requirements for a suitable sampling location	8
8.3 Location of access ports	8
8.4 Sampling platform	8
9 Site work prior to sampling	9
9.1 General	9
9.2 Duct cross-sectional area at the sampling plane	9
9.3 Velocity and temperature survey	10
9.4 The number and position of sampling points	10
9.5 Preliminary sample	10
9.6 Sample transfer and assessment	10
10 Sampling procedure	11

© ISO 1993

All rights reserved. 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

Printed in Switzerland

This is a preview of ISO 10397:1993. [Click here to purchase the full version from the ANSI store.](#)

10.1	General	11
10.2	Nozzle diameter, sampling rate and duration	11
10.3	Definitive sampling	12
10.3.1	General	12
10.3.2	Cumulative sampling (see 3.3)	12
10.3.3	Sample transfer	13
10.3.4	Velocity and temperature readings	13
10.4	Second definitive sample	13
11	Analytical procedures	13
11.1	Return of the filter(s)	13
11.2	Filter clearing in preparation for fibre counting	13
11.3	Fibre counting	13
12	Method of calculation	13
12.1	Calculation of gas velocity	13
12.2	Volume of air sampled	14
12.3	Validation of isokinetic sampling	14
12.4	Fibre concentration	14
13	Presentation and interpretation of results	14
13.1	Presentation	14
13.2	Interpretation of results	14
Annexes		
A	Non-ideal circumstances	15
A.1	Less suitable sampling locations	15
A.2	Position of sampling point	15
A.3	Analytical procedures	15
B	Care of apparatus	16
B.1	Pitot-static tubes	16
B.2	Sample nozzles	16
B.3	Integrating meters	16

This is a preview of ISO 10397:1993. [Click here to purchase the full version from the ANSI store.](#)

C	Typical data sheet for site work	17
D	Typical presentation of results	18
D.1	The process	18
D.2	The test	18
E	Accuracy and precision of method	19
E.1	General	19
E.2	Systematic errors	19
E.2.1	Sampling	19
E.2.2	Analytical	19
E.3	Random errors	19
E.3.1	Sampling	19
E.3.2	Analytical	19
E.4	Overall accuracy	19

This is a preview of ISO 10397:1993. [Click here to purchase the full version from the ANSI store.](#)

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.

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.

International Standard ISO 10397 was prepared by Technical Committee ISO/TC 146, *Air quality*, Sub-Committee SC 1, *Stationary source emissions*.

Annexes A, B, C, D and E of this International Standard are for information only.

Introduction

This International Standard is essentially made up of two parts:

- sampling of asbestos-containing emissions to the atmosphere;
- fibre counting.

Unfortunately the accuracy of the analysis (fibre counting) is such that it adversely affects the accuracy of the whole method. Therefore, it is vitally important that the analytical side be carried out by experienced analysts who have been specially trained in conjunction with an approved quality control scheme.

Although this method has been designed to deal specifically with fibre emissions from asbestos works, it can also be applied to other processes dealing with fibrous materials. Indeed, many asbestos works use substitute fibres and therefore may contain mixed fibre emissions at times. Where this is probable, or where there is a need to identify which fibres are asbestos and which are not, it will be necessary to employ more sophisticated techniques for fibre identification (see ISO 10312). This is not covered in this International Standard.

It should be noted that differences exist at present in the way asbestos fibres and non-asbestos fibres are assessed, especially in the workplace. However, these differences should not affect the way this method is used to assess the effectiveness of the abatement plant.

This International Standard is intended not only to be used to give a quantitative concentration of fibres in emissions from asbestos works, but also as a means of showing the effectiveness or otherwise of the operation of dust and fibre collection equipment.

Because of the relatively short duration of sampling, this method is fairly sensitive to process fluctuations, and therefore a full record of test parameters is required.

The analytical technique for fibre counting used in this method follows that described in ISO 8672.