

First edition  
2000-04-01

---

---

## **Ambient air — Determination of total (gas and particle-phase) polycyclic aromatic hydrocarbons — Collection on sorbent-backed filters with gas chromatographic/mass spectrometric analyses**

*Air ambient — Détermination des hydrocarbures aromatiques polycycliques totales (phase gazeuse et particulaire) — Prélèvement sur filtres à sorption et analyses par chromatographie en phase gazeuse/spectrométrie en masse*



Reference number  
ISO 12884:2000(E)

© ISO 2000

This is a preview of "ISO 12884:2000". [Click here to purchase the full version from the ANSI store.](#)

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2000

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 either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 734 10 79  
E-mail [copyright@iso.ch](mailto:copyright@iso.ch)  
Web [www.iso.ch](http://www.iso.ch)

Printed in Switzerland

This is a preview of "ISO 12884:2000". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

Foreword.....	iv
Introduction .....	v
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Principle.....	2
5 Limits and interferences .....	2
6 Safety measures .....	3
7 Apparatus .....	4
8 Reagents and materials .....	7
9 Preparation of sampling media .....	7
10 Sampling.....	8
11 Sample preparation .....	11
12 Sample analysis .....	13
13 Calculations.....	15
14 Quality assurance.....	16
15 Method detection limit, uncertainty and precision.....	17
Annex A (normative) Performance characteristics.....	18
Annex B (informative) Physical properties of selected PAH .....	19
Annex C (informative) Example of field operations data sheet .....	20
Annex D (informative) Example of a typical PAH chromatogram .....	21
Annex E (informative) Characteristic ions for GC/MS detection of selected PAH .....	23
Bibliography .....	24

This is a preview of "ISO 12884:2000". [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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 12884 was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 3, *Ambient air*.

Annex A forms a normative part of this International Standard. Annexes B, C, D and E are for information only.

This is a preview of "ISO 12884:2000". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

This International Standard is applicable to polycyclic aromatic hydrocarbons (PAH) composed of two or more fused aromatic rings. It does not apply to polyphenyls or other compounds composed of aromatic rings linked by single bonds. Several PAH are considered to be potential human carcinogens. PAH are emitted into the atmosphere primarily through combustion of fossil fuel and wood. Two-ring and three-ring PAH are typically present in urban air at concentrations ranging from ten to several hundred nanograms per cubic metre ( $\text{ng}/\text{m}^3$ ); those with four or more rings are usually found at concentrations of a few  $\text{ng}/\text{m}^3$  or lower. PAH possess saturation vapour pressures at 25 °C that range from  $10^{-2}$  kPa to less than  $10^{-13}$  kPa. Those with vapour pressures above  $10^{-8}$  kPa may be substantially distributed between phases depending on ambient temperature, humidity, types and concentrations of PAH and particulate matter, and residence time in the air. PAH, especially those having vapour pressures above  $10^{-8}$  kPa, will tend to vaporize from particle filters during sampling. Consequently, a back-up vapour trap is included for efficient sampling. Except for PAH with vapour pressures below  $10^{-9}$  kPa, separate analyses of the filter and vapour trap will not reflect the original atmospheric phase distributions at normal ambient temperature because of volatilization of compounds from the filter.