

Soil analysis —

Part 1: Determination of polycyclic aromatic hydrocarbons (PAH)

ICS 13.080.10

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Committees responsible for this Draft for Development

The preparation of this Draft for Development was entrusted by Technical Committee EH/4, Soil quality, to Subcommittee EH/4/3, Chemical methods, upon which the following bodies were represented:

- Association of Consulting Scientists
- B G Technology
- British Ceramic Research Ltd.
- British Society of Soil Science
- Environment Agency
- Laboratory of the Government Chemist
- Ministry of Agriculture, Fisheries and Food
- Society of Chemical Industry
- Soil Survey and Land Research Centre
- Water Research Centre
- Water UK

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Foreword

The preparation of this Draft for Development was entrusted by Technical Committee EH/4, Soil quality, to Subcommittee EH/4/3, Chemical methods, which has the responsibility to aid enquirers to understand the text.

WARNING

Attention is drawn to the Control of Substances Hazardous to Health Regulations 1994 [1].

This Draft for Development calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Certain polycyclic aromatic hydrocarbons (PAHs) are highly carcinogenic and require handling with extreme care. It is essential to avoid contact between solid materials, solvent extracts and solutions of standard PAH, and the body. PAHs can co-distil with solvent and become deposited on the outside of stoppered bottles. All containers containing solutions of PAHs in solvent therefore need handling with gloves that are solvent resistant and preferably disposable. Significant PAH contamination of vessels can be detected by irradiation with 366 nm UV light. Besides being dangerous, such deposits indicate a change in solution concentration. Care should be taken during this operation not to irradiate the bulk of the solution. Vessels containing PAH solutions can be stored standing in beakers to contain any spillage in the case of breakage. Careful attention should be paid to procedural blanks as a means of monitoring general levels of laboratory contamination.

Solid PAHs are the most dangerous and give rise to a dust hazard due to their crystals becoming electrostatically charged. These materials should only be handled where the proper facilities (adequate fume cupboards, protective clothing, dust masks, etc.) are available. It is strongly advised that standard solutions are prepared centrally in suitably equipped laboratories or are purchased from suppliers specializing in their preparation.

Solvent solutions containing PAHs, used gloves, etc., should be disposed of in a manner approved for disposal of toxic wastes.

Before commencing PAH analysis in a laboratory, it is wise to discuss the facilities with the appropriate health authority. It is suggested that initial familiarization with the techniques is carried out using a non-carcinogenic PAH such as fluoranthene.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature because of the limited performance data currently available. It should be applied on this provisional basis, so that information and experience of its practical application can be developed.

A review of this Draft for Development will be carried out not later than two years after its publication. Notification of the start of the review period with a request for the submission of comments from users of this Draft for Development will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed.

These should be sent to the Secretary of BSI Technical Committee EH/4 at British Standards House, 389 Chiswick High Road, London W4 4AL.

A Draft for Development does not purport to include all the necessary provisions of a contract. Users of Drafts for Development are responsible for their correct application.

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