

Australian Standard™

**Guide to the sampling and
investigation of potentially
contaminated soil**

Part 2: Volatile substances

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Part 2: Volatile substances

First published as AS 4482.2—1999.

PREFACE

This Standard was prepared by the Standards Australia Committee EV/9, Sampling and Analysis of Soils and Biota as part of a series on the identification, analytical methods and investigation procedures for the assessment of soil.

The objective of this Standard is to derive information which may be required to satisfy regulatory authorities, although additional detail may be required in some localities. This document should be used in conjunction with appropriate Australian Standards for assessing the pollution of air and groundwater. The Standard does not prescribe levels of contaminants which are considered to pose a risk to human health or the environment. Such levels are prescribed in documents such as the criteria produced by ANZECC/NHMRC, or various regulatory agencies.

This Standard provides guidance for the sampling and investigation process, to professionals engaged in these activities. The professionals should consider the relevance of the various components of this Standard to the particular site under investigation and apply them accordingly. At a site, where specific issues beyond the scope of this Standard are raised, relevant expertise should be sought and sampling and investigations targeted accordingly.

The contamination of land and groundwater by chemicals has been well recognized and acted upon in Europe and North America. Because of the relatively short history and low intensity of industrialization in Australia, the number of contaminated sites is far less than for Europe or North America. There is a growing perception in the general community of health risks associated with land contaminated by industrial or agricultural chemicals and processes. These perceived risks may or may not be appropriate, depending upon the amount and quality of information on which they are based. Unfounded fears may be difficult to dispel, whereas 'real' risks associated with exposure to hazardous materials may not be fully appreciated.

It is assumed that execution of the provisions of this Standard is entrusted to appropriately qualified and experienced people. The Standard calls for the use of procedures that may be hazardous or 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.

Sampling of air, biota, surface waters and ground waters should be performed where appropriate.

Procedures for sampling soils for non-volatile analytes are described in AS 4482.1, *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compound*.

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STANDARDS AUSTRALIA

Australian Standard

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard provides guidance for collecting sufficient and reliable information for the assessment of a potentially contaminated site. The Standard does not establish any regulatory limits, remediation requirements or make any recommendations about the proposed land use.

It is however suitable for use in determining compliance with criteria such as those produced by ANZECC/NHMRC* or various regulatory agencies. This document provides specific information pertaining to sampling of soils for volatile analytes. It is intended that this guideline be used in conjunction with AS 4482.1 which contains the general principles of soil sampling.

NOTE: The sampling of soils at sites with significant concentration of volatile chemicals is a particularly hazardous operation. Concentrations of compounds may lie between the lower and upper explosive limits and there is a significant risk of over exposure. It is therefore recommended that particular attention be paid to the relevant sections of Appendix A in AS 4482.1.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS	
4482	Guide to the sampling and investigation of potentially contaminated soil
4482.1	Part 1: Non-volatile and semi-volatile compounds
ISO	
3696	Water for analytical laboratory use—Specification and test methods
USEPA	
540/4-91-001	Soil Sampling and Analysis for Volatile Organic Compounds

1.3 DEFINITIONS

For the purposes of this Standard, the definitions below apply.

1.3.1 Cation exchange capacity

Refers to the total amount of exchangeable cations that a soil can adsorb. The amount of exchangeable cations determines the number of sites where polar volatile compounds may be adsorbed in soils.

* *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites* as amended/supplemented by the Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council.