AS 4439.2:2019

Australian STANDARD®

Wastes, sediments and contaminated soils

Part 2: Preparation of leachates — Zero headspace procedure

STANDARDS Australia

AS 4439.2:2019

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Australasian Land and Groundwater Association
Australian Contaminated Land Consultants Association
Environmental Laboratory Industry Group
Griffith University
National Association of Testing Authorities Australia
National Measurement Institute
NSW Environment Protection Authority
Soil Science Australia

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Part 2: Preparation of leachates — Zero headspace procedure

Originated as AS 4439.2—1997.
Second edition 2019.

Preface

This Standard was prepared by the Standards Australia Committee CH-035, Examination of Wastes, to supersede AS 4439.2—1997.

The objective of this Standard is to provide a standardized method to determine the contamination potential of groundwater with volatile, organic materials from liquid and solid wastes, soils, sediments and sludges.

The major changes in this edition are as follows:

(a) Option to use AS 4439.2 for potentially volatile Hydrogen Cyanide forming Cyanide species.

(b) Additional information on use of this method for Per- and Polyfluoroalkyl Substances (PFAS).

(c) Additional options for determination of percentage solids.

(d) Modified reporting requirements.

The terms "normative" and "informative" are used in Standards to define the application of the appendix to which they apply. A "normative" appendix is an integral part of a Standard, whereas an "informative" appendix is only for information and guidance.

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1 Scope

This Standard provides a method for the preparation of leachates using zero headspace conditions from liquid and solid wastes, sediments, sludges and soils for assessing the potential of volatile organic contamination of groundwater in a variety of disposal-to-land scenarios.

This Standard deals only with the preparation of the leachate.

This Standard excludes procedures prior to submitting samples to the laboratory for analysis or sub-sampling.

The range of analytes includes any organic compound which is liquid or gaseous at normal temperatures and for which a suitable analytical method exists.

NOTE A list of analyte compounds is given in Appendix A.

The use of zero headspace in this Standard may also be used for cyanide forms that may be susceptible to losses due to volatilisation when using pH <7 leaching fluids (refer to AS 4439.3).

The procedure is not applicable to encapsulated wastes which cannot be reduced to the specified maximum particle size without breaking the integrity of encapsulation.

The pH and the oxidation-reduction (redox) potential or E_h of a leaching fluid may vary with each disposal environment and is known to affect the leaching of metals and possibly some organic species. No provision is made in this procedure, however, to control pH and E_h during leaching.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1289.2.1.1, *Methods of testing soils for engineering purposes, Method 2.1.1: Soil moisture content tests — Determination of the moisture content of a soil — Oven drying method (standard method)*

AS 2162.1, *Verification and use of volumetric apparatus, Part 1: General — Volumetric glassware*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 3819, *Laboratory glassware — Beakers*

ISO 4788, *Laboratory glassware — Graduated measuring cylinders*

Method 1313, Revision 1, July 2017, *Proposed Update VI to the Third Edition of the Test Methods for Evaluating Solid Waste*, Physical/Chemical Methods, U.S. Environmental Protection Agency publication SW-846

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.