



## **Wastes, sediments and contaminated soils**

### **Part 2: Preparation of leachates — Zero headspace procedure**



AS 4439.2:2019

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- 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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## 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.

# Contents

Preface .....	ii
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>3</b>
<b>5 Reagents</b> .....	<b>3</b>
5.1 General requirement .....	3
5.2 Reagent water .....	3
5.3 Leaching fluid .....	3
5.3.1 General .....	3
5.3.2 Leaching fluid pH 5.0 .....	3
5.3.3 Leaching fluid pH 9.2 .....	3
5.3.4 Compressed gas .....	3
<b>6 Apparatus</b> .....	<b>4</b>
6.1 General .....	4
6.2 Agitation apparatus .....	4
6.3 Filters .....	4
6.4 Glassware .....	4
6.5 Laboratory balance .....	4
6.6 Leaching fluid reservoir .....	4
6.7 Leaching vessel .....	5
6.8 Liquid collection devices .....	6
6.9 Mortar and pestle .....	7
6.10 Plastic push rod .....	7
6.11 pH meter .....	7
6.12 Pressure filtration device .....	7
<b>7 Preparation of test samples</b> .....	<b>8</b>
7.1 Collection and storage .....	8
7.2 Reduction of sample particle size .....	9
7.3 Determination of percentage solids .....	9
<b>8 Procedure</b> .....	<b>10</b>
8.1 Introduction .....	10
8.2 Selection of leaching fluid .....	12
8.3 Number of determinations .....	12
8.4 Blank test .....	12
8.5 Preparation of the zero headspace extractor for use .....	12
8.6 Leaching of samples .....	13
<b>9 Analysis and calculation</b> .....	<b>15</b>
<b>10 Test report</b> .....	<b>16</b>
<b>Appendix A (informative) Purgable volatile organic compounds</b> .....	<b>18</b>
<b>Bibliography</b> .....	<b>19</b>

# Australian Standard<sup>®</sup>

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### Part 2: Preparation of leachates — Zero headspace procedure

#### 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.