

# ISO 13168:2023-11 (E)

## Water quality - Simultaneous determination of tritium and carbon 14 activities - Test method using liquid scintillation counting

---

Contents	Page
Foreword.....	iv
Introduction.....	v
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms, definitions and symbols.....</b>	<b>2</b>
3.1 Terms and definitions.....	2
3.2 Symbols.....	2
<b>4 Principle.....</b>	<b>3</b>
<b>5 Sampling and storage.....</b>	<b>4</b>
5.1 Sampling.....	4
5.2 Sample storage.....	5
<b>6 Reagents and equipment.....</b>	<b>5</b>
6.1 Reagents.....	5
6.1.1 Water for blank sample.....	5
6.1.2 Calibration source solutions.....	5
6.1.3 Scintillation solution.....	6
6.1.4 Quenching agent.....	6
6.2 Equipment.....	6
<b>7 Procedure.....</b>	<b>6</b>
7.1 Sample preparation.....	6
7.2 Preparation of the counting vial.....	6
7.3 Counting procedure.....	7
7.4 Control and calibration.....	7
7.5 Measurement conditions.....	8
7.6 Interference control.....	8
<b>8 Expression of results.....</b>	<b>9</b>
8.1 General.....	9
8.2 Activity concentration of tritium.....	9
8.3 Activity concentration of carbon 14.....	10
8.4 Combined standard uncertainty for tritium.....	10
8.5 Combined standard uncertainty for carbon 14.....	11
8.6 Decision threshold for tritium.....	11
8.7 Decision threshold for carbon 14.....	12
8.8 Detection limit for tritium.....	12
8.9 Detection limit for carbon 14.....	12
8.10 Limits of the coverage intervals.....	13
8.10.1 Limits of the probabilistically symmetric coverage interval.....	13
8.10.2 Limits of the shortest coverage interval.....	13
8.11 Calculations using the activity per unit of mass.....	14
<b>9 Test report.....</b>	<b>14</b>
<b>Annex A (informative) Example.....</b>	<b>16</b>
<b>Bibliography.....</b>	<b>18</b>