

# ISO 24032:2021-12 (E)

## Soil quality - In situ caging of snails to assess bioaccumulation of contaminants

---

| <b>Contents</b>  | <b>Page</b> |
|--|-------------|
| Foreword.....  | iv          |
| Introduction.....  | v           |
| <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>2</b>    |
| <b>5 Test organism and equipment</b> .....   | <b>2</b>    |
| 5.1 Biological material.....   | 2           |
| 5.2 Equipment.....   | 3           |
| <b>6 Preparation of the organisms for the exposure</b> .....   | <b>4</b>    |
| <b>7 Exposure of the test organisms</b> .....  | <b>4</b>    |
| 7.1 General.....   | 4           |
| 7.2 Beginning of exposure.....   | 5           |
| 7.3 End of the exposure — Starvation.....  | 6           |
| 7.4 Sampling and preparation after exposure.....   | 7           |
| <b>8 Calculation and expression</b> .....  | <b>7</b>    |
| 8.1 General.....   | 7           |
| 8.2 For metal(loid)s.....  | 7           |
| 8.2.1 Threshold guide value.....   | 7           |
| 8.2.2 Calculation of the sum of the excess of transfer of metal(loid)s: SET index.....   | 8           |
| 8.3 For other chemicals.....   | 9           |
| <b>9 Validity of the experiment</b> .....  | <b>9</b>    |
| <b>10 Test report</b> .....  | <b>9</b>    |
| <b>Annex A (informative) Sources and routes of exposure of snails to contaminants in the field</b> .....                             | <b>10</b>   |
| <b>Annex B (informative) Main steps of the bioassay in situ</b> .....  | <b>11</b>   |
| <b>Annex C (informative) Breeding technique for snails</b> .....   | <b>15</b>   |
| <b>Annex D (informative) Example of composition of snail feed</b> .....  | <b>22</b>   |
| <b>Annex E (informative) Usual concentrations in the viscera of sub-adult snails before caging</b> .....                             | <b>23</b>   |
| <b>Annex F (informative) Recommended test systems for in situ exposure to assess bioaccumulation of contaminants in snails</b> ..... | <b>25</b>   |
| <b>Annex G (informative) Example of mass of snails before exposure</b> .....   | <b>28</b>   |
| <b>Annex H (informative) Results of the international ring test</b> .....  | <b>30</b>   |
| <b>Annex I (informative) Ex situ exposure to assess bioaccumulation of chemicals in snails</b> .....                                 | <b>48</b>   |
| <b>Bibliography</b> .....  | <b>56</b>   |