

ISO 8690:2024-09 (E)

Measurement of radioactivity - Gamma ray and beta emitting radionuclides - Test method to assess the ease of decontamination of surface materials

| Contents | | Page |
|------------------------------|---|-------------|
| Foreword | | iv |
| Introduction | | v |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms, definitions and symbols | 2 |
| 3.1 | Terms and definitions | 2 |
| 3.2 | Symbols | 3 |
| 4 | Principle | 4 |
| 5 | Apparatus | 4 |
| 5.1 | Beakers | 4 |
| 5.2 | Radiation detector | 4 |
| 5.3 | Pipettes | 5 |
| 5.4 | Two polytetrafluoroethylene (PTFE) or quartz ampoules | 5 |
| 5.5 | Storage bottles | 5 |
| 5.6 | Mounting | 5 |
| 5.7 | Cage-stirrer apparatus | 6 |
| 6 | Contamination and decontamination agents | 6 |
| 6.1 | Contaminant solutions | 6 |
| 6.1.1 | Composition of contaminant solutions | 6 |
| 6.1.2 | Preparation of the contaminant solutions | 6 |
| 6.1.3 | Preparation of contaminant solution using neutron activation | 7 |
| 6.1.4 | Storage of the contaminant solution | 7 |
| 6.2 | Decontaminant solution | 8 |
| 7 | Test specimens | 8 |
| 7.1 | Preparation and preliminary testing | 8 |
| 7.1.1 | Resistance to cleaning solution | 8 |
| 7.1.2 | Test specimens of non-metallic materials | 8 |
| 7.1.3 | Test specimens of metallic materials | 8 |
| 7.2 | Number and dimensions | 9 |
| 7.3 | Conditioning and cleaning | 9 |
| 8 | Procedure | 9 |
| 8.1 | Determining the specific pulse rate of each contaminant solution | 9 |
| 8.2 | Contamination | 10 |
| 8.3 | Decontamination | 12 |
| 8.4 | Determining the residual pulse rate | 13 |
| 9 | Calculation of results and assessment of ease of decontamination | 14 |
| 10 | Test report | 14 |
| Annex A (informative) | Holder for contamination of test specimen | 16 |

| | |
|---|-----------|
| Annex B (normative) Cage-stirrer apparatus for decontamination | 18 |
| Annex C (informative) Formulae for preparation of the ^{137}Cs and ^{60}Co contaminant solutions | 27 |
| Annex D (informative) Calculations for the production of the contaminant solution using neutron activation | 30 |
| Annex E (informative) Example of a test report | 32 |
| Bibliography | 34 |