ISO 8690:2020 (E)

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

Contents

Foreword

Introduction

1 Scope

2 Normatives references

3 Terms, definitions and symbols

3.1 Terms and definitions
3.2 Symbols

4 Principle

5 Apparatus

6 Contamination and decontamination agents

6.1 Contaminant solutions
6.1.1 Composition of contaminant solutions
6.1.2 Preparation of the contaminant solutions
6.1.3 Preparation of contaminant solution using neutron activation
6.1.4 Storage of the contaminant solution
6.2 Decontaminant solution

7 Test specimens

7.1 Preparation and preliminary testing
7.1.1 Resistance to cleaning solution
7.1.2 Test specimens of non-metallic materials
7.1.3 Test specimens of metallic materials
7.2 Number and dimensions
7.3 Conditioning and cleaning

8 Procedure

8.1 Determining the specific pulse rate of each contaminant solution
8.2 Contamination
8.3 Decontamination
8.4 Determining the residual pulse rate

9 Calculation of results and assessment of ease of decontamination

10 Test report

Annex A (informative) Holder for contamination of test specimen

Annex B (normative) Cage-stirrer apparatus for decontamination

Annex C (informative) Formulae for preparation of the 137Cs and 60Co contaminant solutions

C.1 General
C.2 Desired final volume of contaminant solution
C.3 Total activity of the solution
C.3.1 Characterisation of the activity by use of the disintegration rate
C.3.2 Characterisation of the activity by use of the pulse rate

C.4 Volume, V, of the initial radionuclide solution, corresponding to the total activity or total pulse rate as described in C.3
C.5 Required amount of carrier
C.5.1 Adjusted carrier construction in the final product: 10−5 mol·l−1
C.5.1.1 Required amount of carrier TS for the volume
C.5.2 Carrier-contribution from the initial radionuclide solution
C.5.2.1 Carrier concentration of the initial radionuclide solution τ mol·l−1
C.5.2.2 Added amount of carrier
C.5.3 Required carrier-contribution by addition of carrier solution

Annex D (informative) Calculations for the production of the contaminant solution using neutron activation

D.1 General
D.2 Specific activity of the contaminant solution
D.3 Irradiation time

Annex E (informative) Example of a test report

Page count: 34