ISO/TS 7833:2024-01 (E)

Nanotechnologies - Extraction method of nanomaterials from lung tissue by proteinase K digestion

Foreword ... **iv**

Introduction ... **v**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Symbols and abbreviated terms ... **2**

5 Materials - PK digestion buffer and optimal concentration for lung tissue digestion ... **2**

6 Technical equipment ... **2**

6.1 Vessels ... 2

6.2 Heat block or water bath ... 3

6.3 Drying oven ... 3

6.4 Micro ball mill ... 3

6.5 Microcentrifuge or ultracentrifuge ... 3

6.6 Bath sonicator ... 3

6.7 Pipettes ... 3

7 Procedures ... **3**

7.1 Preparation of lung tissue sample for digestion ... 3

7.1.1 Sampling and drying for lung tissue samples ... 3

7.1.2 Homogenisation of dried tissue slices ... 3

7.2 Tissue digestion by PK ... 3

7.3 Collection of nanomaterials and preparation for instrumental analysis ... 4

8 Methodological considerations for the digestion by PK ... **4**

8.1 Separative collection of nanomaterials from their ionic counterparts ... 4

8.2 Types of nanomaterials applicable to this method ... 4

8.3 The impact of blood in organs on this method ... 4

Annex A (informative) **Recovery efficiency of nanomaterials from the spiking experiment and identification of nanomaterials with TEM after PK digestion** ... **5**

Annex B (informative) **Evaluation of the optimal PK digestion buffer for lung tissue digestion** ... **8**

Annex C (informative) **Evaluation of the optimal concentration of PK for tissue digestion** ... **9**

Annex D (informative) **Efficacy of tissue digestion with/without drying and powderisation** ... **10**

Annex E (informative) **Comparison of tissue digestion with/without perfusion** ... **11**

Bibliography ... **13**