

# ISO/TS 7833:2024-01 (E)

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

---

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 Symbols and abbreviated terms.....</b>	<b>2</b>
<b>5 Materials - PK digestion buffer and optimal concentration for lung tissue digestion.....</b>	<b>2</b>
<b>6 Technical equipment.....</b>	<b>2</b>
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
<b>7 Procedures.....</b>	<b>3</b>
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
<b>8 Methodological considerations for the digestion by PK.....</b>	<b>4</b>
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
<b>Annex A (informative) Recovery efficiency of nanomaterials from the spiking experiment and identification of nanomaterials with TEM after PK digestion.....</b>	<b>5</b>
<b>Annex B (informative) Evaluation of the optimal PK digestion buffer for lung tissue digestion.....</b>	<b>8</b>
<b>Annex C (informative) Evaluation of the optimal concentration of PK for tissue digestion.....</b>	<b>9</b>
<b>Annex D (informative) Efficacy of tissue digestion with/without drying and powderisation.....</b>	<b>10</b>
<b>Annex E (informative) Comparison of tissue digestion with/without perfusion.....</b>	<b>11</b>
<b>Bibliography.....</b>	<b>13</b>