

# DIN EN ISO 21646:2022-09 (E)

## Solid recovered fuels - Sample preparation (ISO 21646:2022)

---

<b>Contents</b>		<b>Page</b>
<b>European foreword</b> .....		<b>4</b>
<b>Foreword</b> .....		<b>5</b>
<b>Introduction</b> .....		<b>6</b>
<b>1</b>	<b>Scope</b> .....	<b>8</b>
<b>2</b>	<b>Normative references</b> .....	<b>8</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>8</b>
<b>4</b>	<b>Symbols</b> .....	<b>11</b>
<b>5</b>	<b>Safety remarks</b> .....	<b>11</b>
<b>6</b>	<b>Principles of correct sample preparation</b> .....	<b>11</b>
<b>7</b>	<b>Quality control and sources of error</b> .....	<b>13</b>
<b>8</b>	<b>Apparatus</b> .....	<b>14</b>
8.1	Selection of equipment .....	14
8.2	Apparatus for sample division .....	15
8.2.1	Scoops and shovels (sampling tools) .....	15
8.2.2	Riffle boxes .....	16
8.2.3	Rotary sample dividers .....	17
8.3	Apparatus for particle size reduction .....	18
8.3.1	Shredder .....	18
8.3.2	Coarse cutting mill .....	18
8.3.3	Cutting mill .....	18
8.4	Sieves .....	18
8.5	Balance .....	18
<b>9</b>	<b>Sample preparation procedure</b> .....	<b>19</b>
9.1	General .....	19
9.2	Step 1: Collecting the relevant information of the material for sample preparation .....	19
9.3	Step 2: Making a sample preparation plan .....	19
9.3.1	General .....	19
9.3.2	Sample division .....	19
9.3.3	Particle size reduction of a sample .....	19
9.3.4	Retaining the minimum (sub-)sample mass .....	22
9.4	Step 3: Performing the sample preparation plan .....	23
<b>10</b>	<b>Methods for homogenization and sample division</b> .....	<b>23</b>
10.1	General .....	23
10.2	Homogenization .....	23
10.3	Sample division methods .....	23
10.3.1	General .....	23
10.3.2	Riffling .....	23
10.3.3	Strip division .....	24
10.3.4	Long strip .....	25
10.3.5	Manual increment division .....	25
10.3.6	Rotary sample divider .....	26
10.3.7	Fractional shovelling .....	26
10.3.8	Quartering .....	27

<b>11</b>	<b>Methods for mass and particle size reduction of laboratory samples and general analysis samples</b> .....	<b>28</b>
11.1	General.....	28
11.2	Initial sample division .....	28
11.3	Initial mass determination .....	28
11.4	Pre-drying .....	28
11.5	Particle size reduction to < 30 mm.....	29
11.6	Sample division of < 30 mm material.....	30
11.7	Particle size reduction of < 30 mm material to < 1 mm.....	30
11.8	Sample division of < 1 mm material.....	31
11.9	Particle size reduction of < 1 mm material to < 0,25 mm.....	31
<b>12</b>	<b>Handling considerations of the general analysis sample and the test portion</b> .....	<b>32</b>
12.1	Key concepts.....	32
12.2	Sequence of preparation procedures.....	33
<b>13</b>	<b>Storage, preservation and labelling of samples</b> .....	<b>33</b>
<b>14</b>	<b>Sample preparation report</b> .....	<b>33</b>
<b>15</b>	<b>Precision</b> .....	<b>34</b>
<b>Annex A</b>	<b>(normative) Determination of the shape factor</b> .....	<b>35</b>
<b>Annex B</b>	<b>(normative) Determination of the changing shape factor</b> .....	<b>36</b>
<b>Annex C</b>	<b>(informative) Examples of sample preparation procedures</b> .....	<b>38</b>
<b>Annex D</b>	<b>(normative) Guidelines for choosing sample preparation procedures</b> .....	<b>42</b>
<b>Annex E</b>	<b>(informative) Relationship between minimum amount of sample and particle size – Formula for the estimation of the minimum amount of sample</b> .....	<b>51</b>
<b>Annex F</b>	<b>(normative) Sample preparation equipment</b> .....	<b>54</b>
<b>Annex G</b>	<b>(normative) Characteristics of the laboratory sample for chemical analysis of solid recovered fuel</b> .....	<b>55</b>
<b>Annex H</b>	<b>(informative) Data on the precision of sample preparation</b> .....	<b>57</b>
<b>Annex I</b>	<b>(informative) Results of ruggedness testing</b> .....	<b>60</b>
	<b>Bibliography</b> .....	<b>68</b>