ISO 21646:2022-05 (E)

Solid recovered fuels - Sample preparation

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Symbols 4

5 Safety remarks 4

6 Principles of correct sample preparation 4

7 Quality control and sources of error 6

8 Apparatus 7
8.1 Selection of equipment 7
8.2 Apparatus for sample division 8
8.2.1 Scoops and shovels (sampling tools) 8
8.2.2 Riffle boxes 9
8.2.3 Rotary sample dividers 10
8.3 Apparatus for particle size reduction 11
8.3.1 Shredder 11
8.3.2 Coarse cutting mill 11
8.3.3 Cutting mill 11
8.4 Sieves 11
8.5 Balance 11

9 Sample preparation procedure 12
9.1 General 12
9.2 Step 1: Collecting the relevant information of the material for sample preparation 12
9.3 Step 2: Making a sample preparation plan 12
9.3.1 General 12
9.3.2 Sample division 12
9.3.3 Particle size reduction of a sample 12
9.3.4 Retaining the minimum (sub-)sample mass 15
9.4 Step 3: Performing the sample preparation plan 16

10 Methods for homogenization and sample division 16
10.1 General 16
10.2 Homogenization 16
10.3 Sample division methods 16
10.3.1 General 16
10.3.2 Riffling 16
10.3.3 Strip division 17
10.3.4 Long strip 18
10.3.5 Manual increment division 18
10.3.6 Rotary sample divider 19
10.3.7 Fractional shovelling 19

10.3.8 Quartering 20

11 Methods for mass and particle size reduction of laboratory samples and general analysis samples 21
11.1 General 21
11.2 Initial sample division 21
11.3 Initial mass determination 21
11.4 Pre-drying 21
11.5 Particle size reduction to < 30 mm 22
11.6 Sample division of < 30 mm material 23
11.7 Particle size reduction of < 30 mm material to < 1 mm 23
11.8 Sample division of < 1 mm material 24
11.9 Particle size reduction of < 1 mm material to < 0,25 mm 24

12 Handling considerations of the general analysis sample and the test portion 25
12.1 Key concepts 25
12.2 Sequence of preparation procedures 26

13 Storage, preservation and labelling of samples 26

14 Sample preparation report 26

15 Precision 27

Annex A (normative) Determination of the shape factor 28

Annex B (normative) Determination of the changing shape factor 29

Annex C (informative) Examples of sample preparation procedures 31

Annex D (normative) Guidelines for choosing sample preparation procedures 35

Annex E (informative) Relationship between minimum amount of sample and particle size - Formula for the estimation of the minimum amount of sample 44

Annex F (normative) Sample preparation equipment 47

Annex G (normative) Characteristics of the laboratory sample for chemical analysis of solid recovered fuel 48

Annex H (informative) Data on the precision of sample preparation 50

Annex I (informative) Results of ruggedness testing 53

Bibliography 61