

# DIN EN 14778:2011-09 (E)

## Solid biofuels - Sampling

---

<b>Contents</b>		<b>Page</b>
Foreword .....		4
Introduction .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	6
4	Symbols and abbreviations .....	8
5	Principle .....	8
6	Establishing a sampling scheme (sampling plan) .....	9
6.1	Principle .....	9
6.2	Full sampling plan .....	9
6.3	Brief sampling plan .....	10
6.4	Division of lots .....	10
7	Visual inspection .....	11
8	Number of increments .....	11
8.1	General .....	11
8.2	Primary increment variance (VI) .....	12
8.3	Preparation and testing variance (VPT) .....	12
8.4	Overall precision (PL) .....	13
8.5	Calculation of number of increments per (sub)-lot .....	13
9	Calculation of the size of increment .....	14
10	Combined sample - Calculation of the volume of the combined sample .....	14
11	Sampling equipment .....	15
11.1	General .....	15
11.2	Equipment for manual sampling .....	15
11.3	Equipment for mechanical sampling .....	22
12	Sampling in practice .....	24
12.1	General .....	24
12.2	Methods for sampling stationary material .....	24
12.3	Methods for sampling moving material .....	27
12.4	Sampling of roundwood .....	28
13	Sample generation .....	30
13.1	Combined samples and laboratory samples .....	30
14	Performance characteristics .....	30
15	Handling and storage of samples .....	30
15.1	Packaging, storing and transport of samples .....	30
15.2	Identification / labelling .....	31

16	Sampling certificates .....	31
	Annex A (informative) Model Sampling Plan and Sampling Certificate .....	32
	Annex B (informative) Sampling from large stockpiles .....	35
B.1	Initial assessment of the stockpile .....	35
B.2	Taking samples .....	35
B.3	Marking, packaging and dispatch of samples .....	35
B.4	Certificate of sampling .....	35
	Annex C (informative) Bulk densities of biofuels .....	36
	Annex D (informative) Empirical values for PL, VI and VPT .....	37
D.1	Introduction .....	37
D.2	Large shipment of wood pellets from different sources .....	37
	Annex E (informative) Guidelines for the number of increments to be taken .....	41
E.1	General .....	41
E.2	Estimation of the number of increments from empirical values .....	41
E.3	Examples for determining VPT, VI, NSL and nmin .....	46
	Annex F (informative) Quality parameters for various solid biofuels in BioNorm projects and large shipments of wood pellets .....	50
F.1	General .....	50
F.2	Products investigated as part of the BioNorm projects .....	50
F.3	Summary of results from BioNorm projects .....	51
F.4	Large shipments .....	57
	Bibliography .....	63