

ANSI/ASABE AD17225-4:2014 FEB2018

Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips



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This standard was reviewed and approved for adoption by the ASABE Energy Systems committee ES-238. Adopted by ASABE and approved as an American National Standard February 2018.

Keywords: Wood chips, Chemical treatment, Contamination, Commercial application

0 Foreword

0.1 ANSI/ASABE AD17225-4:2014 FEB2018, Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips, is an adoption with deviations of the identically titled ISO AD17225-4:2014 Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips. Deviations noted in the following Foreword sections pertain to those provisions where harmonization could not be achieved between ASABE and the International Standard.

Deviations from the subsequently printed international standard are noted with underscore (addition) or strikethrough (deletions) text. Deviations from the international standard figures, tables and equations are clearly marked.

0.2 ANSI /ASABE D17225-4:2014 FEB2018, Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips scope. This part of ISO 17225 determines the fuel quality classes and specifications of graded and/or processed wood chips. This part of ISO 17225 covers only wood chips produced from the following raw materials (see ISO 17225-1, Table 1):

- 1.1 Forest, plantation and other virgin wood
- 1.2 By-products and residues from wood processing industry
- 1.3.1 Chemically untreated used wood

0.3 Nine normative references are listed in ISO number 17225-4. These references have been reviewed and accepted as part of the adoption with deviations of the ISO document in ASABE adoption number.

0.4 This standard has been approved as an American National standard by ANSI (American National Standard Institute).

0.5 This standard deviates from ISO 17225-4 as follows:

0.5.1 Scope statement: add “This part of ISO 17225 determines the fuel quality classes and specifications of graded **and/or processed** wood chips.”

0.5.2 All of the references have been published. Remove notice of pending publication.

0.5.3 3.1 wood chips

woody biomass in the form of pieces with a defined particle size and shape produced by mechanical size reduction with sharp tools. Delete Note 1.

0.5.4 3.2 chemical treatment

any treatment with chemicals other than air, water or heat whether intentional or inadvertent

0.5.5 3.4 commercial application

Note 1 to entry: Commercial and light industrial applications should not be confused with industrial applications, which can utilize a much wider array of materials and have vastly different fuel requirements.

0.5.6 5 Paragraph 2 and 3. Property classes A1, A2, B1, and B2, represent a wide range of origins and sources including virgin woods and chemically untreated wood residues. A1 represents fuels with lower ash content and lower moisture content, while class A2 has slightly higher ash content and/or moisture content. All property classes (A1, A2, B1, and B2) exclude chemically treated industrial by-products and residues.

Chemically treated wood by-products and residues from wood processing industry (1.2.2) excluded in any property class to ensure they do not contain heavy metals or halogenated organic compounds as a result of treatment with wood preservatives or coating

Table 1 deviations:

0.5.6.1 Delete references to P31 and P45.

0.5.6.2 Add references to P9,5, P25, P38, P50 as indicated.

0.5.6.3 Footer change: Add to end of first sentence “or equivalent wire screen sieve size. Note that the opening of round hole screens is less than the diagonal of “equivalent” wire screens in the table.”

Table 1 – Particle size of graded wood chips
(deviations from ISO are noted in red font with underline)

Dimensions (mm), ISO 17827-1					
	Main Fraction ^a (minimum 60 w-%)	Fines Fraction, w-% ≤3,15 mm	Coarse Fraction, w- %, (length of particle)	Max. Length of Particles ^b	Max. Cross Sectional Area of the Coarse Fraction ^c
<u>P9,5S</u>	<u>3,15 mm (1/8 in.) < P ≤ 9,5 mm (3/8 in.)</u>	<u>≤15%</u>	<u>≤6% (>19 mm)</u> <u>(3/4 in.)</u>	<u>≤32 mm</u> <u>(1 1/4 in.)</u>	<u>≤1 cm²</u> <u>(0.2 in.²)</u>
P16S	3,15 mm (1/8 in.) < P ≤ 16 mm (5/8 in.)	≤15%	≤6% (>31,5 mm) (1 1/4 in.)	≤45 mm (1 3/4 in.)	≤2 cm ² (0.3 in. ²)
<u>P25S</u>	<u>3,15 mm (1/8 in.) < P ≤ 25 mm (1.0 in.)</u>	<u>≤15%</u>	<u>≤6% (>31,5 mm)</u> <u>1 1/4 in.)</u>	<u>≤45 mm</u> <u>(1 3/4 in.)</u>	<u>≤2 cm²</u> <u>(0.3 in.²)</u>
<u>P38S</u>	<u>3,15 mm (1/8 in.) < P ≤ 38 mm (1.5 in.)</u>	<u>≤10%</u>	<u>≤6% (>45 mm)</u> <u>(1 3/4 in.)</u>	<u>≤150 mm</u> <u>(6.0 in.)</u>	<u>≤4 cm²</u> <u>(0.6 in.²)</u>
<u>P50S</u>	<u>3,15 mm (1/8 in.) < P ≤ 50 mm (2 in.)</u>	<u>≤10%</u>	<u>≤10% (>63 mm)</u> <u>(2 1/2 in.)</u>	<u>≤200 mm</u> <u>(8.0 in.)</u>	<u>≤6 cm²</u> <u>(1.0 in.²)</u>

^a The numerical values (P-class) for dimension refer to the particle sizes passing through the mentioned round hole sieve size (ISO 17827-1) or equivalent wire screen sieve size. Note that the opening of round hole screens is less than the diagonal of “equivalent” wire screens in the table. The lowest possible class should be stated. Only one class shall be specified for wood chips.

^b Length and cross sectional area only have to be determined for those particles, which are to be found in the coarse fraction. Maximum 2 pieces of about 10 l sample may exceed the maximum length, if the cross sectional area is <0,5 cm².

^c For measuring the cross sectional area it is recommended to use a transparent set square, place the particle orthogonally behind the set square and estimate the maximum cross sectional area of this particle with the help of the cm²-pattern.

0.5.7 Table 2 deviations:

0.5.7.1 Property class, Unit for A1, A2, B1, B2 all changed to be the same.

0.5.7.1.1 1.1 Forest, plantation, and other virgin wood, including the following:

1.1.1 Whole trees without roots

1.1.3 Stemwood

1.1.4 Logging residues

1.2 By-products and residues from wood processing industry, including the following:

1.2.1 Chemically untreated wood residues

0.5.7.2 Particle size, P: Delete reference to ISO 17827-1, Table 1

0.5.7.3 Add notation in Moisture/Units (wet basis).

0.5.7.4 Moisture, A-1, delete $M10 \leq 10$, add $M13 \leq 13$, $M30 \leq 30$, $M35 \leq 35$, $M50 \leq 50$.

0.5.7.5 Moisture, B-2 add $M13 \leq 13$, $M25 \leq 25$, $M30 \leq 30$, $M35+$.

0.5.7.6 Footnote reference to the exclusion of bark removed because if “whole-trees without roots” and “stemwood” are allowed, there will be bark.

Text of ISO 17225-4:2014 Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips, with deviations noted, follows.

1 Scope

This part of ISO 17225 determines the fuel quality classes and specifications of graded [and/or processed](#) wood chips. This part of ISO 17225 covers only wood chips produced from the following raw materials (see ISO 17225-1, Table 1):

- 1.1 Forest, plantation and other virgin wood
- 1.2 By-products and residues from wood processing industry
- 1.3.1 Chemically untreated used wood

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE: ISO standards describing methods for analysis of fuel properties listed in the Bibliography, will become normative references when they are published.