BS EN 14961-6:2012

BSI Standards Publication

Solid biofuels — Fuel specifications and classes

Part 6: Non-woody pellets for non-industrial use

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National foreword

This British Standard is the UK implementation of EN 14961-6:2012.

The UK participation in its preparation was entrusted to Technical Committee PTI/17, Solid biofuels.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Biocombustibles solides - Classes et spécifications des combustibles - Partie 6: Granulés non ligneux à usage non industriel

Feste Biobrennstoffe - Brennstoffspezifikationen und -klassen - Teil 6: Nicht-holzartige Pellets für nichtindustrielle Verwendung

This European Standard was approved by CEN on 27 November 2011.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 14961-6:2012) has been prepared by Technical Committee CEN/TC 335 “Solid biofuels”, the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The European standard series EN 14961, *Solid biofuels — Fuel specifications and classes* are provided as a general requirements and additional product standards. Additional product standards may extend this series over time.

EN 14961 consists of the following parts, under the general title *Solid biofuels — Fuel specifications and classes*:

— *Part 1: General requirements*;

— *Part 2: Wood pellets for non-industrial use*;

— *Part 3: Wood briquettes for non-industrial use*;

— *Part 4: Wood chips for non-industrial use*;

— *Part 5: Firewood for non-industrial use*;

— *Part 6: Non-woody pellets for non-industrial use*.

Although these product standards may be obtained separately, they require a general understanding of the standards based on and supporting EN 14961-1. It is recommended to obtain and use EN 14961-1 in conjunction with these standards.

NOTE In these product standards, non-industrial use means - fuel intended to be used in smaller appliances, such as in households and small commercial and public sector buildings.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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Introduction

This European Standard for *Solid biofuels — Fuel specifications and classes — Part 6: Non-woody pellets for non-industrial use* has been produced by CEN/TC 335, "Solid Biofuels", Working group "Fuel specifications, classes and quality assurance".

The objective of this European Standard is to provide unambiguous and clear classification principles for solid biofuels and to serve as a tool to enable efficient trading of biofuels and to enable good understanding between seller and buyer as well as a tool for communication with equipment manufacturers. It will also facilitate authority permission procedures and reporting.

This European Standard is made to support the use of non-woody pellets in non-industrial situations and specifically for the domestic/householder markets and smaller commercial boiler situations, where sensitivity to the fuel quality can cause major issues. Non-woody pellets have high ash, chlorine, nitrogen and sulphur content and major element contents, so non-woody pellets are recommended to be used in appliances, which are specially designed or adjusted for this kind of pellet.

These consumers need special consideration for the following reasons:

1) small-scale equipment does not usually have advanced controls and flue gas cleaning;

2) it is not generally managed by professional heating engineers;

3) they are often located in residential and populated districts.

NOTE 1 Pellets produced according to this European Standard can be used in pellet burners tested according to EN 15270 and pellet boilers or integrated-pellet burner systems tested according to prEN 303-5 ($\leq$ 500 kW_{th}).

NOTE 2 When using non-woody materials for combustion special attention should be paid to the risk of corrosion in small- and medium scale boilers and flue gas system. Be aware that for different types of herbaceous or fruit biomass growth under different conditions and soil type, may influence the fuel ash composition, e.g. in soil with a high phosphorus (P) content, potassium (K), that will capture chlorine (K will form K-phosphates instead of KCl) in the ash that will result in high hydrochloric emissions.

NOTE 3 In general non-woody biomass materials have higher content of ash forming elements and lower ash melting temperature compared to most wood based materials, which may result in slagging and deposit problems inside the boiler. These problems are especially related to materials that contain high content of potassium (K) and silicate (Si) and low content of calcium (Ca).

1 Scope

This European standard determines the fuel quality classes and specifications of non-woody pellets for non-industrial use. This European standard covers only non-woody pellets produced from the following raw material (see EN 14961-1:2010, Table 1):

— 2 Herbaceous biomass.

NOTE 1 *Herbaceous biomass* is from plants that have a non-woody stem and which die back at the end of the growing season. It includes grains or seeds crops from food processing industry and their by-products such as cereal straw:

— 3 Fruit biomass;

— 4 Biomass blends and mixtures.

NOTE 2 Group 4 *Blends and mixtures* include blends and mixtures from the main origin-based solid biofuel groups woody, herbaceous biomass and fruit biomass.

Blends are intentionally mixed biofuels, whereas mixtures are unintentionally mixed biofuels. The origin of the blend and mixture should be described using EN 14961-1:2010, Table 1.

If solid biofuel blend or mixture contains chemically treated material, it should be stated.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 14588:2010, *Solid biofuels — Terminology, definitions and descriptions*

EN 14774-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*

EN 14774-2, *Solid biofuels — Determination of moisture content — Oven dry method — Part 2: Total moisture — Simplified method*

EN 14775, *Solid biofuels — Determination of ash content*

EN 14918, *Solid biofuels — Determination of calorific value*

EN 14961-1:2010, *Solid biofuels — Fuel specifications and classes — Part 1: General requirements*

EN 15103, *Solid biofuels — Determination of bulk density*

EN 15104, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen — Instrumental methods*

EN 15210-1, *Solid biofuels — Determination of mechanical durability of pellets and briquettes — Part 1: Pellets*

EN 15234-6, *Solid biofuels — Fuel quality assurance — Part 6. Non-woody pellets for non-industrial use*

EN 15289, *Solid biofuels — Determination of total content of sulfur and chlorine*

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EN 15297, *Solid biofuels — Determination of minor elements — As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V and Zn*

CEN/TS 15370-1, *Solid biofuels — Method for the determination of ash melting behaviour — Part 1: Characteristic temperatures method*

EN 16127, *Solid biofuels — Determination of length and diameter of pellets*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14588:2010 and the following apply.

3.1
non-woody pellet
densified non-woody biofuel made from pulverised (e.g. ground) biomass with or without additives usually with a cylindrical form diameter < 25 mm, random length and typically 3,15 mm to 40 mm with broken ends, obtain by mechanical compression

NOTE The raw material for non-woody pellets can be herbaceous biomass, fruit biomass, or biomass blends and mixtures. They are usually manufactured in a die with a total moisture content usually less than 15 % of their mass.

3.2
additive
material which improves the quality of the fuel (e.g. combustion properties), reduces emissions or makes production more efficient

3.3
chemical treatment
treatment with chemicals other than air, water or heat

NOTE Examples of chemical treatment are listed in informative Annex C of EN 14961-1:2010.

4 Symbols and abbreviations

The symbols and abbreviations used in this European Standard comply with the SI system of units as far as possible.

d dry (dry basis)

ar as received

w-% weight-percentage

A designation for ash content, A_d [w-%, dry basis][1)]

BD designation for bulk density as received [kg/m^3][1)]

D designation for diameter as received, D [mm][1)]

DU designation for mechanical durability as received [w-%][1)]

F designation for amount of fines as received [w-%, particles less than 3,15 mm][1)]

1) Designation symbols are used in combination with a number to specify property levels in Tables 1 and 2. For designation of chemical properties chemical symbols like S (sulphur), Cl (chlorine), N (nitrogen) are used and the value is added at the end of the symbol.

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L designation for length as received, L [mm][1)]

M designation for moisture content as received on wet basis, M_{ar} [w-%][1)]

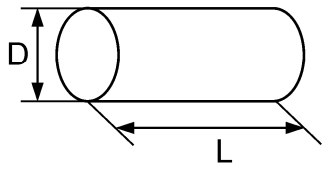
Q designation for net calorific value as received, $q_{p,net,ar}$ [MJ/kg or kWh/kg or MWh/t] at constant pressure[1)]

NOTE 1 MJ/kg equals 0,277 8 kWh/kg (1 kWh/kg equals 1 MWh/t and 1 MWh/t is 3,6 MJ/kg). 1 g/cm^3 equals 1 kg/dm^3.

5 Specification of non-woody pellets for non-industrial use

Specifications of the non-woody pellets from cereal straw, Miscanthus and reed canary grass are stated in accordance with Table 1. Specification of non-woody pellets produced from other herbaceous biomass, fruit biomass and blends and mixtures are stated in accordance with Table 2. The sampling and analysis of the properties shall be carried out in accordance with the methods mentioned in the normative references.

Chemical treatment before harvesting of biomass does not need to be stated. Where any operator in the fuel supply chain has reason to suspect serious contamination of land (e.g. coal slag heaps) or if planting has been used specifically for the sequestration of chemicals or biomass is fertilised by sewage sludge (issued from waste water treatment or chemical process), fuel analysis should be carried out to identify chemical impurities such as halogenated organic compounds or heavy metals. In case of raw materials belonging to 2.2.2 and 3.2.2 (chemically treated herbaceous and fruit biomass according to EN 14961-1:2010, Table 1) the actual origin of the raw material shall be closer described.



Key

D Diameter L Length

Figure 1 — Dimension of pellets

If the properties being specified are sufficiently known through information about the origin and handling (or preparation method combined with experience) then physical/chemical analysis may not be needed.

To ensure resources are used appropriately and the declaration is accurate, utilise the most appropriate measure below:

a) using typical values, e.g. laid down in Annex B of EN 14961-1:2010, or obtained by experience;

b) calculation of properties, e.g. by using typical values and considering documented specific values;

1) Designation symbols are used in combination with a number to specify property levels in Tables 1 and 2. For designation of chemical properties chemical symbols like S (sulphur), Cl (chlorine), N (nitrogen) are used and the value is added at the end of the symbol.

c) carrying out of analysis:

1) with simplified methods if available,

2) with reference methods.

The responsibility of the producer or supplier to provide correct and accurate information is exactly the same whether laboratory analysis is performed or not. Typical values do not negate the producer or supplier from providing accurate and reliable information.

To ensure the end-user receives pellets with a low level of fines, the amount of fines shall be stated when leaving the final point of loading for delivery to the end-user, i.e. leaving the final storage point or the factory if delivering directly to the end-user. The amount of fines leaving the factory gate shall also be stated according to Tables 1 and 2 (unless there is a different agreement between the producer and their customer), even when not going directly to the end-user.

To ensure that pellets maintain their quality, the handling and storage (including the equipment) shall be appropriate at each stage of supply or delivery chain, up to the end-user storage.

NOTE The fines requirement has been included to ensure small-scale users are protected from handling and combustion issues while operating their combustion plant/appliance.

The quality shall be given either in the product declaration (EN 15234-6) or by a corresponding label on the package.

Table 1 — Specification of pellets produced from cereal straw, miscanthus and reed canary grass

	Property class, Analysis method	**Units**	**Cereal Straw pellets**	**Miscanthus pellets**	**Reed canary grass pellets**
Normative	Origin and source, EN 14961-1:2010, Table 1		2.1.1.2 Straw parts	2.1.2.1 Grasses, Whole plant	2.1.2.1 Grasses, Whole plant
	Diameter, D [a] and length L [b] EN 16127 According to Figure 1	mm	D06 to D25, D ± 1; 3,15 ≤ L ≤ 40 (from D06 to D10) 3,15 ≤ L ≤ 50 (from D12 to D25)	D06 to D25, D ± 1; 3,15 ≤ L ≤ 40 (from D06 to D10) 3,15 ≤ L ≤ 50 (from D12 to D25)	D06 to D25, D ± 1; 3,15 ≤ L ≤ 40 (from D06 to D10) 3,15 ≤ L ≤ 50 (from D12 to D25)
	Moisture, M, EN 14774-1, EN 14774-2	as received, w-%	M10 ≤ 10	M10 ≤ 10	M12 ≤ 12
	Ash, A[c], EN 14775	w-% dry	A6.0 ≤ 6 A6.0+ > 6 [d]	A4.0 ≤ 4 A6.0 ≤ 6	A8.0 ≤ 8 A8.0 + > 8 [d]
	Mechanical durability, DU, EN 15210-1	as received, w-%	DU97.5 ≥ 97,5	DU97.5 ≥ 97,5	DU96.5 ≥ 96,5
	Fines at factory gate in bulk transport (at the time of loading) and in small bags, up to 20 kg and large sacks (at time of packing or delivery to end-user), F, EN 15210-1 (hand sieving)	as received, w-%	F1.0 ≤ 1,0	F1.0 ≤ 1,0	F1.0 ≤ 1,0
	Additives [e]	w-%, dry	Type and amount to be stated	Type and amount to be stated	Type and amount to be stated
	Net calorific value as received, Q, EN 14918	MJ/kg or kWh/kg	Minimum value to be stated	Minimum value to be stated	Q14.5 ≥ 14,5 Q4.0 ≥ 4,0
	Bulk density, BD, EN 15103	as received, kg/m^3	BD600 ≥ 600	BD580 ≥ 580	BD550 ≥ 550
	Nitrogen, N, EN 15104	w-% dry	N0.7 ≤ 0,7	N0.5 ≤ 0,5	N 2.0 ≤ 2,0
	Sulphur , S, EN 15289	w-% dry	S0.10 ≤ 0,10	S0.05 ≤ 0,05	S0.20 ≤ 0,20
	Chlorine, Cl, EN 15289	w-% dry	Cl0.10 ≤ 0,10	Cl0.08 ≤ 0,08	Cl0.10 ≤ 0,10
Informative	Arsenic, As, EN 15297	mg/kg dry	≤ 1	≤ 1	≤ 1
	Cadmium, Cd, EN 15297	mg/kg dry	≤ 0,5	≤ 0,5	≤ 0,5
	Chromium, Cr, EN 15297	mg/kg dry	≤ 50	≤ 50	≤ 50
	Copper, Cu, EN 15297	mg/kg dry	≤ 20	≤ 20	≤ 20
	Lead, Pb, EN 15297	mg/kg dry	≤ 10	≤ 10	≤ 10
	Mercury, Hg, EN 15297	mg/kg dry	≤ 0,1	≤ 0,1	≤ 0,1
	Nickel, Ni, EN 15297	mg/kg dry	≤ 10	≤ 10	≤ 10
	Zinc, Zn, EN 15297	mg/kg dry	≤ 100	≤ 100	≤ 100
	Ash melting behaviour [f], CEN/TS 15370-1	°C	should be stated	should be stated	should be stated

[a] Selected size (D06, D08, D10, D12 or D25) of pellets to be stated
[b] Pellets longer than 40 mm can be 1 w-% (from D06 to D10). Maximum length shall be < 45 mm for pellets from D06 to D10.
[c] Actual ash property class shall be stated.
[d] Value to be stated.
[e] Type of additives to aid production, delivery or combustion (e.g. pressing aids, slagging inhibitors or any other additives like starch, corn flour, potato flour, vegetable oil,…). Also additives which are used after production, before unloading to end-user storages, shall be stated similarly (type and amount).
[f] All characteristic temperatures (shrinkage starting temperature (SST), deformation temperature (DT), hemisphere temperature (HT) and flow temperature (FT)) in oxidizing conditions should be stated.

Table 2 — Specification of pellets produced from herbaceous biomass, fruit biomass and blends and mixtures

	Property class, Analysis method	**Units**	**A**	**B**
Normative	Origin and source [a], EN 14961-1:2010, Table 1		2 Herbaceous biomass 3 Fruit biomass 4 Blends and mixtures	2 Herbaceous biomass 3 Fruit biomass 4 Blends and mixtures
	Diameter, D [b] and length L [c] EN 16127 According to Figure 1	mm	D06 to D25, D ± 1; 3,15 ≤ L ≤ 40 (from D06 to D10) 3,15 ≤ L ≤ 50 (from D12 to D25)	D06 to D25, D ± 1; 3,15 ≤ L ≤ 40 (from D06 to D10) 3,15 ≤ L ≤ 50 (from D12 to D25)
	Moisture, M, EN 14774-1, EN 14774-2	as received, w-%	M12 ≤ 12	M15 ≤ 15
	Ash, A, EN 14775	w-% dry	A5.0 ≤ 5	A10 ≤ 10
	Mechanical durability, DU, EN 15210-1	as received, w-%	DU97.5 ≥ 97,5	DU96.0 ≥ 96,0
	Fines at factory gate in bulk transport (at the time of loading) and in small bags, up to 20 kg and large sacks (at time of packing or delivery to end-user), F, EN 15210-1 (hand sieving)	as received, w-%	F2.0 ≤ 2,0	F3.0 ≤ 3,0
	Additives [d]	w-%, dry	Type and amount to be stated	Type and amount to be stated
	Net calorific value as received, Q, EN 14918	MJ/kg or kWh/kg	Q14.1 ≥ 14,1 or Q3.9 ≥ 3,9	Q13.2 ≥ 13,2 or Q3.7 ≥ 3,7
	Bulk density, BD, EN 15103	as received, kg/m^3	BD600 ≥ 600	BD600 ≥ 600
	Nitrogen, N, EN 15104	w-% dry	N1.5 ≤ 1,5	N2.0 ≤ 2,0
	Sulphur , S, EN 15289	w-% dry	S0.20 ≤ 0,20	S0.20 ≤ 0,20
	Chlorine, Cl, EN 15289	w-% dry	Cl0.20 ≤ 0,20	Cl0.30 ≤ 0,30
Informative	Arsenic, As, EN 15297	mg/kg dry	≤ 1	≤ 1
	Cadmium, Cd, EN 15297	mg/kg dry	≤ 0,5	≤ 0,5
	Chromium, Cr, EN 15297	mg/kg dry	≤ 50	≤ 50
	Copper, Cu, EN 15297	mg/kg dry	≤ 20	≤ 20
	Lead, Pb, EN 15297	mg/kg dry	≤ 10	≤ 10
	Mercury, Hg, EN 15297	mg/kg dry	≤ 0,1	≤ 0,1
	Nickel, Ni, EN 15297	mg/kg dry	≤ 10	≤ 10
	Zinc, Zn, EN 15297	mg/kg dry	≤ 100	≤ 100
	Ash melting behaviour [e], CEN/TS 15370-1	°C	should be stated	should be stated

[a] To be stated the 4-digit classification number of the source for 1 woody biomass, 2 Herbaceous and 3 Fruit biomass (Table 1, EN 14961-1:2010). If composition of blend is known, the w-% can be used to specifying blends.
Example 1: 80 w-% 2.1.1.2 Straw, 20 w-% 2.1.2.2 Grasses, straw plant. In the case of mixture, the main component should be stated first. *Example 2:* 2.1.1.2 Straw, 2.1.2.2 Grasses, straw plant.
[b] Selected size (D06, D08, D10, D12 or D25) of pellets to be stated.
[c] Pellets longer than 40 mm can be 1 w-% (from D06 to D10). Maximum length shall be < 45 mm for pellets from D06 to D10.
[d] Type of additives to aid production, delivery or combustion (e.g. pressing aids, slagging inhibitors or any other additives like starch, corn flour, potato flour, vegetable oil,…). Also additives which are used after production, before unloading to end-user storages, shall be stated similarly (type and amount).
[e] All characteristic temperatures (shrinkage starting temperature (SST), deformation temperature (DT), hemisphere temperature (HT) and flow temperature (FT)) in oxidizing conditions should be stated.

Annex A
(informative)

A-deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

This European Standard does not fall under any Directive of the EC.

In the relevant CEN/CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.

Deviation	
Country **France**	**National Regulation** Rubrique 2910 de la nomenclature ICPE (Installations classées pour la protection de l'environnement) – Décret n° 2010-419 du 28 avril 2010 modifiant la nomenclature des installations classées The use of solid biofuels as mentioned in this standard is possible only for heating boilers up to a nominal heat output of 100 kWth, which are thus potentially subject to ICPE Regulation (Classified installation for the protection of the environment regulation). In any cases, heating boilers categories remains subject to the criteria set out in ICPE Regulation, in particular according to the source of biofuels and its composition.
Clause 1 **- Note 2** **- Last sentence** **Clause 3** **Definition 3.1 (NOTE)**	The standard leaves the possibility to burn chemically treated wood in "non industrial situation and specifically for the domestic/householder markets and smaller commercial boiler situations", while the introduction focuses on the need to reinforced consumer's safety (i.e. "where sensitivity to the fuel quality can cause major issues"). Only class 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.2.1, 1.3.1, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.1.7, 2.1.8, 2.2.1, 3.1.1, 3.1.2, 3.1.3, 3.1.4 and 3.2.1 in Table 1 of EN 14961-1 are authorized and Class B2.1.1, B2.1.2, B2.1.3, B2.1.4, B2.1.5, B2.1.6, B2.1.7, B2.1.8, B2.2.1, B3.1.1, B3.1.2, B3.1.3, B3.1.4 and B3.2.1 of EN14961-6.
Clause 5 **2nd paragraph** **Last sentence**	French regulation prohibits the burning of Class A2.2.2, A2.2.3, A2.3, A3.2.2, A3.2.3, A3.3, A4 and B2.2.2, B2.2.3, B2.3, B3.2.2, B3.2.3, B3.3, B4 products as defined in this paragraph.
Table 1 **Class A and B products**	French regulation prohibits the burning of Class A2.2.2, A2.2.3, A2.3, A3.2.2, A3.2.3, A3.3, A4 and B2.2.2, B2.2.3, B2.3, B3.2.2, B3.2.3, B3.3, B4 products as defined in this paragraph.

Italy **EN 14961-6 conflicts with the Italian law that has stricter limits concerning the allowed biomasses intended to be used for energy purposes, thus it is necessary to include the following deviation.** **Clause 1 Scope** This European standard determines the fuel quality classes and specifications of non-woody pellets for non-industrial use. This European standard covers only non-woody pellets produced from the following raw material (see EN 14961–1, Table 1): – 2.1 Herbaceous biomass - Herbaceous biomass from agriculture and horticulture NOTE 1: Herbaceous biomass is from plants that have a non-woody stem and which die back at the end of the growing season. It includes grains or seeds crops from food processing industry and their by-products such as cereal straw; - 2.2.1 Herbaceous biomass - By-products and residues from herbaceous processing industry - Chemically untreated herbaceous residues – 3.1 Fruit biomass - Orchard and horticulture fruit - 3.2.1 Fruit biomass - By-products and residues from fruit processing industry - Chemically untreated fruit residues – 4 Biomass blends and mixtures NOTE 2: Group 4 Blends and mixtures includes blends and mixtures from the main origin-based untreated solid biofuel groups woody, herbaceous biomass and fruit biomass. Blends are intentionally mixed biofuels, whereas mixtures are unintentionally mixed biofuels. The origin of the blend and mixture has to be described using EN	Decreto legislativo n. 152 del 3 aprile 2006 "Norme in materia ambientale" (G.U. Serie generale n. 88 – 14/4/2006) *(Legislative Decree n. 152 -3 April 2006 - "Regulation on environmental matter" - G.U. General n. 88 – 14/4/2006)* Parte 5, Allegato X, Parte 2, Sezione 4 *(Part 5, Annex X, Part 2, Section 4)* Concerning the biomasses, and the relevant treatments, for energy purposes the decree allows only the use of: 1. Typology and origin Vegetable material from forestry activity, forest maintenance and pruning (mainly compiles to class 1.1. in EN 14961-1) Vegetable material produced by exclusively mechanical process on: untread wood made by bark, sawdust, chips … (omitted) not contaminated by pollutants (mainly compiles to class 1.1. in EN 14961-1)

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14961-1 Table 1. **Clause 5 Specification of non-woody pellets for non-industrial use** The following final sentence of 2nd paragraph is deleted since the use of treated biomass is not allowed at all: "*In case of raw materials belonging to 2.2.2 and 3.2.2 (chemically treated herbaceous and fruit biomass according to EN 14961-1:2010, table 1) the actual origin of the raw material shall be closer described.*" **Table 2 – 2nd row 4th -5th column (A and B classes)** Origin and source shall be consistent with the scope as defined in this deviation.	

Bibliography

[1] prEN 303-5, *Central-Heating boilers — Part 5: Heating boilers for solid fuels, hand and automatically stocked, nominal heat output of up to 500 kW — Terminology requirements, testing and marking*

[2] EN 14778, *Solid biofuels — Sampling*

[3] EN 14780, *Solid biofuels — Sample preparation*

[4] EN 15105, *Solid biofuels — Determination of the water soluble chloride, sodium and potassium content*

[5] EN 15234-1, *Solid biofuels — Fuel quality assurance — Part 1. General requirements*

[6] EN 15270, *Pellet burners for small heating boilers — Definitions, requirements, testing, marking*

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