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Solid biofuels — Terminology, definitions and descriptions

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Solid biofuels - Terminology, definitions and descriptions

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Feste Biobrennstoffe - Terminologie, Definitionen und Beschreibungen

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Foreword

This document (EN 14588:2010) 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of an identical text or by endorsement, at the latest by April 2011, and conflicting national standards shall be withdrawn at the latest by April 2011.

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This document supersedes CEN/TS 14588:2003.

Annex A and Annex B are informative.

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Introduction

This European Standard has been performed in accordance with ISO 10241 [1]. Beside international standards (see References) approved national standards and manuals [2], [3], [4], [5] provided the basis of this European Standard. Moreover, some terms important within specific nations were added to the international terminology during compilation of this document.

Waste is defined in Article 1(a) of Council Directive 75/442/EEC [6] and some of the given terms fall within this category. However, sources within the scope of this European Standard are excluded from the scope of Directive 2000/76/EC ("waste incineration directive") [7]. In this European Standard, instead of the legal definition *waste* the technical term *residue* is used for well-defined side-streams from agricultural, forestry and related industrial operations. The terms and definitions are harmonised as far as possible with the current language used in management as well as in regulatory activities.

1 Scope

This European Standard defines terms concerned in all standardisation work within the scope of CEN/TC 335. According to CEN/TC 335 this European Standard is applicable to solid biofuels originating from the following sources:

- products from agriculture and forestry;
- vegetable waste from agriculture and forestry;
- vegetable waste from the food processing industry;
- wood waste, with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste from construction- and demolition waste;
- cork waste;
- fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and heat generated is recovered.

The embedding of the scope within the biomass/biofuel field is given in Figure 1.

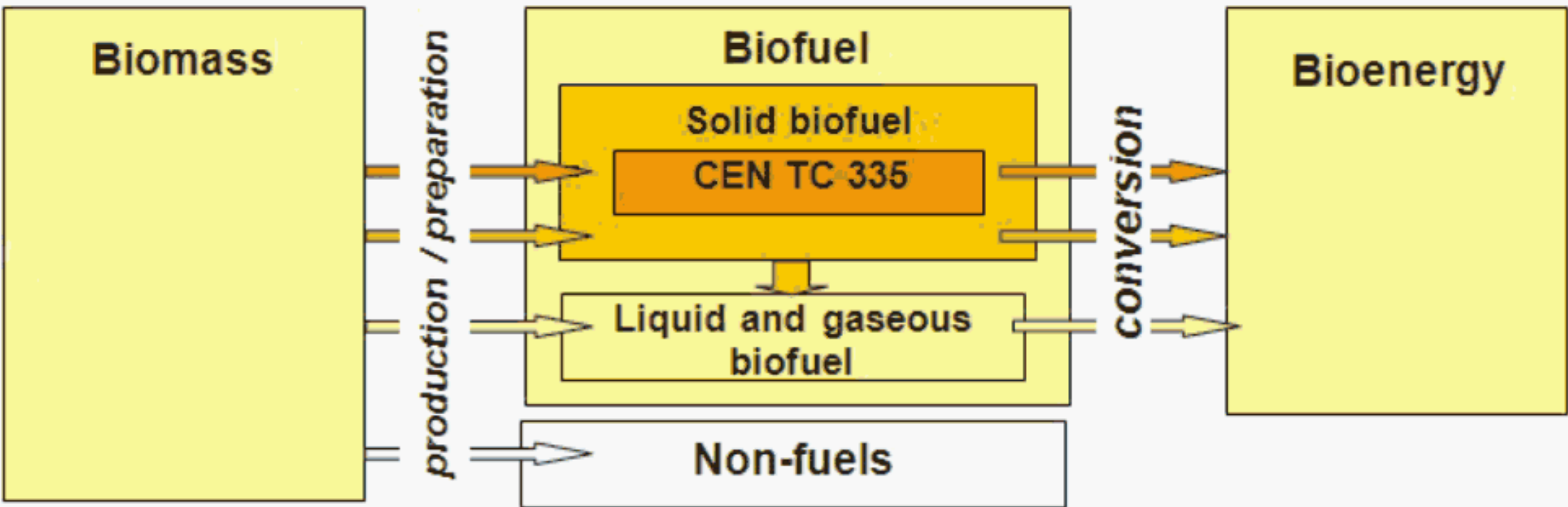


Figure 1 — CEN TC 335 within the biomass-biofuel-bioenergy field

NOTE 1 CEN/TC 335 considers that wood waste, including wood waste originating from construction and demolition waste are included in the scope of CEN/TC 335 and of the scope of the mandate M/298 "solid biofuels", unless they contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coatings [8].

NOTE 2 There are more terms included within this European Standard as covered by the mandate due to clarification and differentiation.

NOTE 3 Changes of ownership of the fibrous vegetable waste between paper and pulp company and the operator of the co-incineration plant in which the waste is used does not affect the inclusion of the waste in the scope of mandate M/298.

Other standards with a different scope than this European Standard can have different definitions than this standard.

2 Normative references

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

Not applicable.

3 Principle

Solid biofuels are produced from different sources, which are defined within the scope of CEN TC 335 “Solid biofuels”. Terms and definitions are categorised in a logical structure based on the fact that solid biofuels are produced from different sources and that the purpose of solid biofuels is the conversion into bioenergy:

- the sources of solid biofuels cover the initial location of the input material (biomass) in the economic and environmental cycles (like forest wood, energy forest trees, logging residues, landscape management residues, etc.);
- the description of the solid biofuels itself as well as their handling, which covers the source and origin of the biofuel given in the same structure as the biomass sources (e.g. wood fuels, forest fuels), the different forms of biofuels produced within the preparation process (i.e. chipped biofuels, bundled biofuels), the most relevant biofuel properties (e.g. total moisture, total ash), and terms of sampling and testing as well as classification and specification;
- bioenergy as the result of biofuel conversion.

Appropriate terms for sampling and testing as well as classification and specification of properties have to be defined and described together with the category *source/origin, forms and properties of solid biofuels*. The structure of this European Standard (Table 1) is based on the classification system of solid biofuels given in [9], in which the classification of solid biofuels is specified more detailed.

Table 1 — Structure of the terms [9]

Sources of biofuels	Woody biomass
	Herbaceous biomass
	Fruit biomass
	Biomass blends and mixtures
Solid biofuels	Source/origin
	Traded forms
	Sampling and testing
	Properties
	Classification and specification
Bioenergy	

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Many terms defined within this document are also used in the standardisation work of CEN/TC 343, especially in prEN 15357, *Solid recovered fuels — Terminology, definitions and descriptions*. Therefore, an informative list of terms defined by prEN 15357 is given in Annex B.

4.1 additive

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

4.2

agricultural residues

biomass residues originating from production, harvesting, and processing in farm areas

NOTE See also *crop production residues*.

4.3

agrofuels

biofuels obtained as a product of *energy crops* and/or *agricultural residues*

NOTE Adapted from FAO unified bioenergy terminology (UBET) [10].

4.4

air dried basis

condition in which the solid biofuel is in equilibrium with the atmospheric humidity

[Adapted from ISO 1213-2:1992]

4.5

animal husbandry residues

agricultural residues originating from livestock keeping

NOTE 1 It includes among others solid excreta of animals.

NOTE 2 Animal husbandry residues are not included in the scope of CEN/TC 335. The term is included for information only.

4.6

as analysed

determined basis

condition in which the moisture content of the solid biofuel is the content at the moment of analysis/determination

[Adapted from ISO 1213-2:1992]

4.7

as received basis

as received

as delivered

calculation basis for material at delivery

4.8

ash

solid mineral residue obtained from a complete *fuel* combustion

[Adapted from ISO 1213-2:1992]

NOTE Depending on the combustion efficiency the ash may contain combustibles.

4.9

ash deformation temperature

DT

temperature at which the first signs of rounding of the edges of the test pieces occurs due to melting

4.10

ash flow temperature

FT

temperature at which the *ash* is spread out over the supporting tile in a layer, the height of which is one-third of the height of the test piece at the *ash hemisphere temperature*

4.11
ash fusibility
ash melting behaviour

characteristic physical state of the *ash* obtained by heating under specific conditions

NOTE 1 Ash fusibility is determined under either oxidizing or reducing conditions.

NOTE 2 See also *ash deformation temperature*, *ash flow temperature*, *ash hemisphere temperature*, and *ash sphere temperature*.

4.12
ash hemisphere temperature
HT

temperature at which the test piece forms approximately a hemisphere, i.e. when the height becomes equal to half the base diameter

4.13
ash sphere temperature
ST

temperature at which shrinking of the test piece occurs

NOTE This temperature is defined as when the area of the piece falls below 95 % of the original test piece area at 550°.

4.14
baled biofuel
bale

solid biofuel which has been compressed and bound to keep its shape and *density*

EXAMPLES Straw bales, bales of energy grass, bales of treetops and branches.

4.15
bark

organic cellular tissue which is formed by taller plants (trees, bushes) on the outside of the growth zone (cambium) as a shell for the wooden body

4.16
basis/bases

convention on measuring quantity

4.17
basic density

ratio of the mass on *dry basis* and the *solid volume* on *green basis*

4.18
bioenergy

energy from *biomass*

4.19
biofuel

fuel produced directly or indirectly from *biomass*

4.20
biofuel blend

biofuel resulting from intentionally mixing of different *biofuels*

EXAMPLES Straw or *energy grass* with wood, dried *biosludge* with *bark*.

4.21

biofuel briquette

densified biofuel made with or without *additives* in the form of cubiform, polyedric or cylindrical units, produced by compressing pulverised biomass

NOTE 1 The raw material for briquettes can be *woody biomass*, *herbaceous biomass*, *fruit biomass* and *biomass blends*, and *biomass mixtures*.

NOTE 2 Biofuel briquettes are usually manufactured in a piston press. The *total moisture* of the biofuel briquette is usually less than 15 % of mass as received.

NOTE 3 Biofuel briquettes for non industrial use are specified in prEN 14961-3.

4.22

biofuel mixture

biofuel resulting from natural or unintentional mixing of different *biofuels* and/or different types of *biomass*

4.23

biofuel pellet

densified biofuel made from *pulverised biomass* with or without *additives* usually with a cylindrical form, random length typically 3,15 mm to 40 mm, and broken ends

NOTE The raw material for biofuel pellets can be *woody biomass*, *herbaceous biomass*, *fruit biomass*, or *biomass blends* and *mixtures*. They are usually manufactured in a die. The *total moisture* of biofuel pellets is usually less than 10 % of mass as received.

[Adapted from prEN 14961-2:2010]

4.24

biomass

from a scientific and technical point of view, material of biological origin excluding material embedded in geological formations and/or transformed to fossil

NOTE 1 Biomass is defined in legal documents in many different ways according to the scope and goal of the respective documents (e.g. Directive 2001/77/EC of the European Parliament and the Council; Commission Decision (2007/589/EC) of 18 July 2007). This definition does not contradict legal definitions.

NOTE 2 See also *herbaceous biomass*, *fruit biomass*, and *woody biomass*.

4.25

biomass residues

biomass originating from well defined side-streams from agricultural, forestry and related industrial operations

NOTE Adapted from the proposal within the Draft CEN Report Solid Recovered Fuels [11].

4.26

biomass resource owner

body or enterprise with the right to exploit the *biomass* resources for energy purposes

NOTE The biomass resource owner can be a land or forest owner, a company, etc.

4.27

biosludge

sludge formed in the aeration basin during biological waste water treatment or biological treatment process and separated by sedimentation or flotation

NOTE Biosludges are not included in the scope of CEN/TC 335. The term is included for information only.

4.28
black liquor

liquor obtained from wood during the process of pulp production, in which the energy content is mainly originating from the content of lignin removed from the wood in the pulping process

NOTE Black liquor is not included in the scope of CEN/TC 335. The term is included for information only.

4.29
**bridging
arching**

tendency of particles to form a stable arch across an opening and hindering flow

NOTE Adapted to Woodcock and Mason. Bulk Solids Handling [12].

4.30
bulk density

mass of a portion of a solid *fuel* divided by the *volume* of the container which is filled by that portion under specific conditions

[Adapted from ISO 1213-2:1992]

4.31
bulk volume, loose volume

volume of a material including space between the particles

4.32
bundled biofuel, bundle

solid biofuels which has been bound together and where there is a lengthwise orientation of the material

EXAMPLES Bundles of *energy forest trees* and *logging residues*, small trees, or branches and tops.

4.33
**calorific value
heating value**

q
energy amount per unit mass or volume released on complete combustion

NOTE See also *gross calorific value*, *energy density*, *net calorific value*, and *net calorific value as received*.

4.34
cereal crops

annual crops grown with the main purpose to use the seed for food production

NOTE Some cereal crops can be used as a *solid biofuel*.

EXAMPLES Barley, wheat, rye, oat.

4.35
char
solid partially or non-agglomerated carbonaceous material produced by pyrolysis of *solid fuels*

[Adapted from ISO 1213-2:1992]

4.36
chemical treatment
treatment with chemicals other than air, water or heat (e.g. glue and paint)

4.37
chopped straw
straw which has been cut into small pieces

4.38

chunkwood

wood cut or brooken with sharp cutting devices in which most of the material has a typical particle length, substantially longer and more coarse than *wood chips*

NOTE Chunkwood has a typical length of 50 mm to 150 mm.

4.39

combined sample

sample consisting of all the *increments* taken from a *sub-lot*

NOTE The increments may be reduced by division before being added to the combined sample.

4.40

common sample

sample collected for more than one intended use

[Adapted from ISO 13909:2001]

4.41

complete tree

harvested tree, including limbs and root system

NOTE See also *whole tree*.

4.42

contamination

make impure by exposure to or addition of a poisonous or polluting substance to a fuel

4.43

cork residues

biomass residues from cork production

4.44

critical control point

point within or between processes at which relevant properties can be most readily assessed

NOTE Critical control points also offer the greatest potential for quality improvement.

4.45

crop production residues

agricultural residues originating from crop production, harvesting, and processing in farm areas

NOTE It includes among others wood, straw, stalks, and husks.

4.46

cross-cut ends

short pieces of *woody biomass* which occur when the ends of logs or sawn timber are cross cut off, with or without *bark*

4.47

customer client

organization or person that receives a product

[Adapted from EN ISO 9000:2005]

4.48

cut biofuel

solid biofuel cut into pieces

NOTE See also *chunkwood*, *firewood*, *chopped straw*, and *smallwood*.

4.49
cutter chips

wood chips made as a by-product of the wood processing industry, with or without *bark*

4.50
delivery agreement

contract for fuel trade, which specifies e.g. origin and source, *quality* and quantity of the fuel, as well as delivery terms

4.51
delivery lot

solid biofuel batch on which the essential quality requirements for *solid biofuel* are focused

NOTE 1 *The delivery lot* can be an individual *delivery lot*, which is an agreed quantity of *solid biofuel* (e.g. a package, shipload or truck load), or continuous delivery, where several loads are delivered to the *end-user* during an agreed period of time (usually daily or weekly delivery).

NOTE 2 In continuous delivery, the *delivery lot* is the amount of solid biofuel delivered during a specified period of time, e.g. 24 h, unless otherwise agreed by *supplier* and *end-user*. If the delivery lot in continuous delivery is more than 1 500 m³ – 2 000 m³ in 24 h, it is recommended that it should be divided into two or more individual lots.

4.52
demolition wood

used wood arising from demolition of buildings or civil engineering installations

[Adapted from EN 13965-1:2004]

4.53
densified biofuel
compressed biofuel

solid biofuel made by mechanically compressing *biomass* to increase its *density* and to mould the *solid biofuel* into a specific size and shape such as cubes, pressed logs, *biofuel pellets* or *biofuel briquettes*

NOTE See also *biofuel briquette* and *biofuel pellets*.

4.54
density
ratio of mass to *volume*

NOTE 1 It will always be stated whether the density refers to the density of individual particles or to the bulk density of the material and whether the mass of water in the material is included.

NOTE 2 See also *basic density*, *bulk density* and *particle density*.

4.55
dry ash free
dry ash free basis

calculation basis in which the *solid fuel* is free from *moisture* and *inorganic matter*

4.56
dry
dry basis
calculation basis in which the *solid fuel* is free from *moisture*

[Adapted from ISO 1213-2:1992]

4.57
dry matter
material after removal of *moisture* under specific conditions

4.58
dry matter content

portion of *dry matter* in the total material on mass basis

NOTE Expressed as a percentage of the *total mass* of the *solid biofuel*.

4.59
edgings

parts of *woody biomass* which occur when trimming sawn timber and which show a remainder of the original rounded surface of the tree, with or without *bark*

4.60
end-user

consumer (private person, enterprise, utility, etc.) using fuel for energy purposes

4.61
energy crops, fuel crops

woody or herbaceous crops grown specifically for their *fuel* value

NOTE 1 See also *energy forest trees*, *energy grass*, *energy plantation trees*.

NOTE 2 Fuel crops is a not recommended synonym.

4.62
energy density

ratio of net energy content and *bulk volume*

NOTE The energy density is calculated using the *net calorific value* determined and the *bulk density*.

4.63
energy forest trees

woody biomass grown specifically for its *fuel* value in medium to long rotation forestry

4.64
energy grain

grain used for energy purpose

4.65
energy grass
fuel grass

endogenous plants having simple leaves grown specifically for their *fuel* value

NOTE 1 Belong to the group of *herbaceous biomass*.

EXAMPLES Sugarcane, Miscanthus, Reed canary grass.

NOTE 2 Fuel grass is a not recommended synonym.

4.66
energy plantation trees

woody biomass grown as *short rotation trees* specifically for its *fuel* value

4.67
extraneous ash

ash from contaminants entering the material at harvest, logging, treatment, transport, storage, etc.

4.68
fibreboard residues

woody biomass residues from the fibreboard industry

4.69
fibre sludge

sludge formed in the sedimentation basin as a part of the waste water treatment process in a pulp and paper mill and separated by sedimentation or flotation

NOTE The main component is pieces of wood fibres. The sludge can be dewatered and further processed into a solid biofuel.

4.70
firewood

cut and sometimes split oven-ready *fuelwood* used in household wood burning appliances like stoves, fireplaces and central heating systems

NOTE Firewood usually has a uniform length, typically in the range of 150 mm to 1 000 mm.

[Adapted from prEN 14961-5:2010]

4.71
fixed carbon

remainder after the percentage of *total moisture*, *ash*, and *volatile matter* are subtracted from 100

[Adapted from ISO 1213-2:1992]

4.72
flowability

ability of a bulk solid to flow

NOTE See also *bridging*.

4.73
food processing industry residues

biomass residues originating from the food processing industry

NOTE 1 It includes among others bone meal, press cake from juice production.

NOTE 2 Food processing industry residues are only partly within the scope of CEN/TC 335. Bone meal is e.g. not included.

4.74
foreign material impurities

material other than claimed, which has contaminated the *fuel*

4.75
forest chips

forest wood in the form of *wood chips*

4.76
forest fuels

wood fuel produced where the raw material has not previously had another use

NOTE Forest fuel is produced directly from forest wood by a mechanical process.

4.77
forest and plantation wood

woody biomass from forests and/or tree plantations

NOTE See also *complete tree*, *energy forest trees*, *energy plantation trees*, *logging residues*, *thinning residues*, *tree section*, and *whole tree*.

4.78

fruit biomass

biomass from the parts of a plant which hold seeds

EXAMPLES Nuts, olives.

4.79

fuel

energy carrier intended for energy conversion

NOTE 1 Fuels are solid, liquid or gaseous.

NOTE 2 Fuels can originate from biomass amongst others.

4.80

fuel classification

division of *fuels* into defined fuel classes

NOTE The aim of classification can be to describe the *fuel* and/or to physically separate certain particle types.

4.81

fuel dust

pulverised fuel with a typical *particle size* of 1 mm to 5 mm

EXAMPLES Saw dust, straw dust.

4.82

fuel powder

fuel flour

pulverised fuel with a typical *particle size* less than 1 mm

EXAMPLES Wood powder, wood flour, straw powder.

4.83

fuel product declaration

document dated and signed by the *producer/supplier* to the *retailer* or *end-user*, specifying origin and source, traded form and properties of defined lot

4.84

fuel specification

document stating the requirements of the *fuel*

4.85

fuelwood

energy wood

wood fuel where the original composition of the wood is preserved

NOTE Adapted from FAO unified bioenergy terminology (UBET) [10].

4.86

general analysis sample

sub-sample of a *laboratory sample* having a *nominal top size* of 1 mm or less and used for a number of chemical and physical analyses

4.87

green basis

condition based on fresh material at specific *total moisture*

4.88

green chips

wood chips made of fresh *logging* and *thinning residues*, including branches and tops

4.89
grinding dust

dust-like wood residue formed in grinding timber and wood boards

4.90
gross calorific value

q_{gr}
measured value of the specific energy of combustion for unit mass of a *fuel* burned in oxygen in calorimetric bomb under the conditions specified

NOTE 1 The result of combustion are assumed to consist of gaseous, oxygen, nitrogen, carbon dioxide and sulphur dioxide, of liquid water (in equilibrium with its vapour) saturated with carbon dioxide under conditions of the bomb reaction, and of solid ash, all at the reference temperature and at constant volume.

NOTE 2 Old term is "higher heating value".

4.91
gross density

ratio of the mass of a wooden body and its volume, including all cavities (pores and vessels), based on specific *total moisture*

4.92
herbaceous biomass

biomass from plants that has a non-woody stem and which dies back at the end of the growing season

NOTE 1 See also *energy grass*.

NOTE 2 Adapted from BioTech's Life Science Dictionary [13].

4.93
herbaceous fuels

all types of *biofuels* originating from *herbaceous biomass*

4.94
hog fuel

fuelwood in the form of pieces of varying size and shape, produced by crushing with blunt tools such as rollers, hammers, or flails

4.95
horticultural residues

biomass residues originating from production, harvesting, and processing in horticulture including greenhouses

4.96
impurities

material other than the fuel itself

NOTE Examples of impurities for biofuels are stones, soil, pieces of metal, plastics, rope, ice and snow.

4.97
increment

portion of *fuel* extracted in a single operation of the sampling device

[Adapted from ISO 13909:2001]

4.98
inorganic matter

non-combustible fraction of *dry matter*

4.99
laboratory sample

sample sent to or received by the laboratory

4.100

landscape management residues

residues of *woody*, *herbaceous* and *fruit biomass* originating from landscape, park, and cemetery management

NOTE It includes among others grass, hay, branches from landscape trees, road side green, and/or wood from shrubs.

4.101

log wood

cut *fuelwood* in which most of the material has a length of 200 mm and above

4.102

logging residues

woody biomass residues which are created during timber harvesting

NOTE Logging residues include tree tops with branches and they can be salvaged fresh or after seasoning.

4.103

lot

defined quantity of *fuel* for which the quality is to be determined

[Adapted from ISO 13909:2001]

NOTE See also *sub-lot*.

4.104

major elements

elements in the *fuel* that predominantly will constitute the *ash*; including aluminium (Al), calcium (Ca), iron (Fe), magnesium (Mg), manganese (Mn), phosphorus (P), potassium (K), silicon (Si) sodium (Na) and titanium (Ti)

4.105

mass-reduction

reduction of the mass of a *sample* or *sub-sample*

4.106

mechanical durability

ability of *densified fuel* units (e.g. briquettes, pellets) to remain intact, e.g. abrasion and shocks during handling and transport

4.107

minor elements

trace elements

elements in the *fuel* being presented only at small concentrations

NOTE 1 The term "trace elements" is often used synonymous to minor elements; if the elements are metal, the term "trace metals" is also used.

NOTE 2 Concerning solid biofuels, minor elements in general speech is regarded to include the metals arsenic (As), cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), mercury (Hg), manganese (Mn), nickel (Ni), lead (Pb), antimony (Sb), tin (Sn), vanadium (V) and zinc (Zn).

4.108

moisture

water in a *fuel*

NOTE See also *total moisture* and *moisture analysis sample*.

4.109

moisture analysis sample

sample taken specifically for the purpose of determining *total moisture*

[Adapted from ISO 13909:2001]

4.121
particle size

size of the *fuel* particles as determined

NOTE 1 Different methods of determination may give different results.

NOTE 2 See also *particle size distribution*, *fine particles* and *over size particles*.

4.122
particle size distribution

proportions of various *particle sizes* in a solid *fuel*

[Adapted from ISO 1213-2:1992]

4.123
plywood residues

woody biomass residues formed in plywood industry

4.124
point of delivery

location specified in the delivery agreement, at which the proprietary rights of and responsibilities for a *fuel lot* are transferred from one organization or unit to another

4.125
pressing aid

additive used for enhancing the production of *densified fuels*

4.126
producer

organization or unit responsible for the production of the *fuel*

NOTE 1 The *producer* can be responsible for any operation with the purpose of changing the *biofuel* properties.

NOTE 2 The *producer* can also be the *supplier* of the fuel.

4.127
proximate analysis

analysis of a *solid fuel* reported in terms of *ash*, *total moisture*, *volatile matter* and *fixed carbon* measured at specified conditions

[Adapted from ISO 1213-2:1992]

4.128
pulverised fuel

solid fuel in the form of dust and powder, produced by milling or grinding

NOTE See also *fuel dust* and *fuel powder*.

4.129
quality

degree to which a set of inherent characteristics fulfils requirements

[Adapted from EN ISO 9000:2005]

4.130
quality assurance

part of quality management, focused on providing confidence that the quality requirements will be fulfilled

[Adapted from EN ISO 9000:2005]

4.131
quality control

part of quality management, focused on fulfilling the quality requirements

[Adapted from EN ISO 9000:2005]

4.132
recovered construction wood

used wood arising from construction of buildings or from civil engineering works

[Adapted from EN 13965-1:2004]

4.133
repeatability

precision under conditions where independent test results are obtained with the same method on representative *portions* taken from the same *test sample* material in the same laboratory

[Adapted from ISO 1213-2:1992]

4.134
reproducibility

precision under conditions where test results are obtained with the same method on representative portions taken from the *same test sample* material in different laboratories with different operators using different equipment

[Adapted from ISO 1213-2:1992]

4.135
retailer

supplier of (usually packaged) *fuels* in (small) quantities to end-user

NOTE Retailers are usually suppliers to the private household consumers.

4.136
rotary screen

device with cylindrical screens used to separate material into size classes for calculation of particle size distribution

4.137
sample

quantity of material, representative of a larger quantity for which the quality is to be determined

[Adapted from ISO 13909:2001]

NOTE See also *combined sample*, *common sample*, *general analysis sample*, *increment*, *laboratory sample*, *moisture analysis sample*, *size analysis sample*, and *sub-sample*.

4.138
sample preparation

actions taken to obtain representative *laboratory samples* or *test portions* from the original *sample*

4.139
sampling

process of drawing or constituting a *sample*

[ISO 3534-1:1993]

4.140
sampling form

document that should be used during the *sampling* to record data on the way in which the *sampling* is actually being carried out

4.141

sampling plan

predetermined procedure for the selection, withdrawal, preservation, transportation and preparation of the portions to be removed from a population as a *sample*

[ISO 11074-2:1998]

4.142

sampling record

report which serves as a check list and provides the investigator with all necessary information about the *sampling* techniques applied at the site and any additional important information

[ISO 11074-2:1998]

4.143

sample size reduction

size reduction

reduction of the *nominal top size* of a *sample* or *sub-sample*

4.144

sawdust

fine particles created when sawing wood

NOTE Most of the material has a typical particle length of 1 mm to 5 mm.

4.145

short rotation trees

woody biomass grown as a raw material and/or for its *energy* value in short rotation forests

4.146

shredded biofuel

solid biofuel which has been mechanically treated into smaller pieces by blunt tools

EXAMPLES Shredded straw, shredded bark, *hog fuel*.

4.147

size analysis sample

sample taken specifically for the purpose of determining *particle size distribution*

4.148

slabs

parts of *woody biomass* created when cuts are made into the edges of logs and whereby one side shows the original rounded surface of the tree, either completely or partially, with or without *bark*

4.149

smallwood

fuelwood cut with sharp cutting devices and in which most of the material has a particle length typically 50 mm to 500 mm

EXAMPLES *Chunkwood*, *firewood*.

4.150

solid biofuel

solid *fuel* produced directly or indirectly from *biomass*

4.151

solid volume

volume of individual particles

NOTE Typically determined by a fluid displaced by a specific amount of material.

4.152
stacked volume
volume of a determined stacked material including the space between the material pieces

4.153
stemwood
part of tree stem with the branches removed

4.154
stemwood chips
wood chips made of *stemwood*, with or without *bark*

4.155
stump
part of the tree stem below the felling cut

NOTE 1 In complete tree utilisation the root system is included in the stump.

NOTE 2 Adapted from Swedish Forestry Vocabulary, TNC 96 [14].

4.156
sub-lot
part of a *lot* for which a test result is required

[Adapted from ISO 13909:2001]

4.157
sub-sample
portion of a *sample*

4.158
supplier
organization or person that provides a product

[Adapted from EN ISO 9000:2005]

NOTE One supplier may deliver to the end-user directly and take responsibility for fuel deliveries from several producers as well as delivery to the end-user.

4.159
supply chain
overall process of handling and processing raw materials to the point of delivery to the end-user

4.160
test portion
sub-sample either of a *laboratory sample* or a *test sample*

4.161
test sample
laboratory sample after an appropriate preparation made by the laboratory

4.162
thinning residues
woody biomass residues originating from thinning operations

4.163
total ash
ash content
mass fraction of the inorganic residue remaining after complete combustion of a *fuel* under specified conditions, typically expressed as a percentage of the mass of *dry matter* in *fuel*

NOTE See also *extraneous ash* and *natural ash*.

4.164

total carbon (C)

content of carbon within moisture free *fuel*

[Adapted from ISO 1213-2:1992]

4.165

total chlorine (Cl)

content of chlorine within moisture free *fuel*

4.166

total hydrogen (H)

content of hydrogen within moisture free *fuel* (dry basis)

[Adapted from ISO 1213-2:1992]

4.167

total mass

mass of all components of the solid fuel, including dry matter and moisture

4.168

total moisture

moisture content

M_T

moisture in *fuel* removable under specific conditions

NOTE Indicate reference (*dry matter / dry basis*, or *total mass / wet basis*) to avoid confusion.

4.169

total nitrogen (N)

content of nitrogen within *moisture free fuel*

[Adapted from ISO 1213-2:1992]

4.170

total oxygen (O)

content of oxygen within moisture free *fuel* (*dry basis*)

NOTE For *solid biofuels* the amount of *total oxygen* is generally calculated as the remaining portion in the dry fuel from the sum of the *total ash*, the *total carbon*, the *total hydrogen*, the *total nitrogen*, the *total sulphur* and the *total chlorine* in the dry *fuel*.

4.171

total sulphur (S)

content of sulphur within moisture free *fuel*

[Adapted from ISO 1213-2:1992]

4.172

tree section

part of a tree (with branches) which has been cut into suitable length but not processed

NOTE Tree sections can be processed for example to pulpwood or forest fuel.

4.173

ultimate analysis

elementary analysis

analysis of a *fuel* reported in terms of its *total carbon*, *total hydrogen*, *total nitrogen*, and *total sulphur* measured at specified conditions and *total oxygen* calculated by formula

[Adapted from ISO 1213-2:1992]

4.174
used wood

wood substances or objects which have performed their intended purpose

NOTE 1 See also *recovered construction wood* and *demolition wood*.

NOTE 2 Proposal within the Draft CEN Report Solid Recovered Fuels [11].

4.175
viscose residues

residues from viscose production and processing in which cellulose of wood pulp is treated with high concentrations of sodium hydroxide and carbon disulfide and then dissolved in sodium hydroxide forming a thick solution called viscose

4.176
volatile matter

mass loss, corrected for *moisture*, when a *fuel* is heated out of contact with air under specific conditions

[Adapted from ISO 1213-2:1992]

4.177
volume

amount of space that is enclosed within an object

NOTE 1 It will always be stated whether the volume refers to the *solid volume* of individual particles, the *bulk volume*, or the *stacked volume* of the material and whether the mass of *moisture* in the material is included.

NOTE 2 See also *bulk volume*, *solid volume*, and *stacked volume*.

4.178
water soluble content

amount of an element which can be extracted with water using a specified extraction procedure

4.179
wet basis

basis to which a test result is related in the case where the *solid fuel* contains *moisture*

4.180
whole tree

felled, undelimbbed tree, excluding root system

4.181
whole-tree chips

wood chips made of *whole trees*

EXAMPLE *Wood chips* containing stems with bark, branches, needles/leaves.

4.182
wood chips

chipped *woody biomass* in the form of pieces with a defined *particle size* produced by mechanical treatment with sharp tools such as knives

NOTE 1 Wood chips have a subrectangular shape with a typical length 5 mm to 50 mm and a low thickness compared to other dimensions.

NOTE 2 See also *cutter chips*, *forest chips*, *green chips*, *stemwood chips*, and *whole-tree chips*.

[Adapted from prEN 14961-4:2010]

4.183
wood fuels
wood based fuels
wood-derived biofuels
all types of *biofuels* originating directly or indirectly from *woody biomass*

NOTE 1 Adapted from FAO unified bioenergy terminology (UBET) [10].

NOTE 2 See also *fuelwood*, *forest fuels*, and *black liquor*.

4.184
wood processing industry by-products and residues
woody biomass residues originating from the wood processing as well as the pulp and paper industry

NOTE See also *bark*, *cork residues*, *cross-cut ends*, *edgings*, *fibreboard residues*, *fibre sluge*, *grinding dust*, *particleboard residues*, *plywood residues*, *saw dust*, *slabs*, and *wood shavings*.

4.185
wood shavings
cutter shavings
shavings from *woody biomass* created when planing wood

4.186
woody biomass
biomass from trees, bushes and shrubs

NOTE This definition includes *forest and plantation wood*, *wood processing industry by-products and residues*, and *used wood*.

Annex A
(informative)

Translation

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
1	additive	additif	Additiv	aditivo	additiv	Additief	lisäaine		tillsats
2	agricultural residues	Sous-produits agricoles	landwirtschaftliche Nebenprodukte	Residuos agrícolas	Restprodukter fra Landbruget	reststoffen uit de landbouw	maatalouden tähteet	Jordbruksrester	biomasserester från jordbruk
3	Agrofuels	Agro-combustibles	landwirtschaftliche Biobrennstoffe	Agrocombustibles, combustibles agrícolas	Brændsler af Landbrugsprodukter	agrobrandstoffen	maataloudessa syntyvät biopolttoaineet	Agrobrensel	agrobränslen
4	air dried basis	séché à l'air	lufttrocken	Secado al aire	lufttørret	Lucht gedroogd	ilmakuiva		
5	animal husbandry residues	résidus de l'élevage	Rückstände aus der Tierhaltung	Residuos del ganado doméstico	Restprodukter fra dyrehold	reststoffen uit de veeteelt	karjatalouden tähteet		biomasserester från djurhållning
6	as analysed /determined basis	tel que analyse/base determine	wie analysiert / Untersuchungsbasis	Base según se analiza/determina	som analyseret	Als geanalyseerd/ bepaald op basis van	analysoitu /määritetty		
7	as received; as delivered	tel que reçu	im Anlieferungszu- stand; im Lieferzustand; wie geliefert	Según se recibe	som modtaget	Als ontvangen	saapumistilassa		
8	ash	Cendre	Asche	Ceniza	Aske	As	tuhka	Aske	aska
9	ash deformation temperature	Température de déformation de la cendre	Ascheeweichungs- temperatur	Temperatura de deformación de ceniza	Aske blødgørings- temperatur	asverwekings- temperatuur	tuhkan pehmenemis- lämpötila	Askesmeltings- forløp	askans initiala deformationstemper atur
10	ash flow temperature	Température de fluidité de la cendre	Asche fließtempera- tur	Temperatura fluida de ceniza	Aske flydetemperatur	as-vloeitemperatuur	tuhkan juoksevuuslämpötila		askans flyttemperatur
11	ash fusibility; ash melting behaviour	Fusibilité de la cendre	Ascheschmelzver- halten	Fusibilidad de ceniza, comportamiento de fusión de ceniza	Aske smelteforløb	assmeltbaarheid, as-smeltgedrag	tuhkan sulamiskäyttöty- minen		askans smältningsförlopp
12	ash hemisphere temperature	Température hémis- phérique de fusion de la cendre	Aschehalbkugel- temperatur	Temperatura de hemisfera de ceniza	Aske halvkugle temperature	as-halveboltempe- ratuur	tuhkan puolipallolämpötila		askans halvsfärstemperatur
13	ash sphere temperature	Température sphéri- que de fusion de la cendre	Aschekugel- temperatur	Temperatura de esfera de ceniza	Aske sfærisk temperature	as-boltemperatuur	tuhkan pallolämpötila		askans mjuknings- temperatur
14	baled biofuel; bale	Biocombustible conditionné en balle	Biobrennstoffe in Ballenform; Biobrennstoff in Ballen	Biocombustible empacado	Biobrændsler i baller	biobrandstof in balen	paalattu biopolttoaine	Biobreselballer	balat biobränsle

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
15	bark	Ecorce	Rinde	Corteza	Bark	Schors	kuori	Bark	bark
16	basis/bases	Base/bases	Bezugsbasis	base/bases	basis	Basis	laskentaperuste		basis
	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
17	basic density	Densité basale	ernte frische Trockendichte	Densidad básica	Tørfylde		kuiva-tuoretiheys	Basisdensitet	torr-rådensitet
18	bioenergy	Bio-énergie	Bioenergie	Bioenergía	Bioenergi	bio-energie	bioenergia	Bioenergi	bioenergi
19	biofuel	Biocombustible	Biobrennstoff; biogener Brennstoff	Biocombustible	Biobrændsel	biobrandstof	biopolttoaine	Biobrensel	biobränsle
20	biofuel blend	Assortiment de biocombustible	definierte Mischung unterschiedlicher Biobrennstoffe	Mezcla intencionada de biocombustible	Biobrændselsblan- ding	biobrandstof-blend	polttoaineseoite (seossuhde tiedetään)	Biobrenselblan- ding (bestemt)	(medvetet) blandat biobränsle
21	biofuel briquette	Brique de biocombustible	Biobrennstoffbrikett	Briqueta de biocombustible	Biobrændsel brikette	biobrandstof-briket	biopolttoainebriketti	Brenselbriketter	biobränslebrikett
22	biofuel mixture	Mélange de biocombustible	undefinierte Mischung unterschiedlicher Biobrennstoffe	Mezcla controlada de biocombustibles	Blandet biobrændsel	biobrandstof- mengsel	biopolttoaineseos	Biobrenselblan- ding (ubestemt)	(naturligt/ omedvetet) blandat biobränsle
23	biofuel pellet	Granulés de biocombustible	Biobrennstoffpellet	Pélet de biocombustible	Biobrændsel pille	biobrandstof-pellet	biopolttoainepelletti	Brenselpelletter	biobränslepellets
24	biomass	Biomasse	Biomasse	Biomasa	Biomasse	biomassa	biomassa	Biomasse	biomassa
25	biomass residues	Sous-produit de transformation de la biomasse	biogene Rückstände	Residuos de biomasa	Biomasse biprodukt	biomassareststoffen	biomassatähteet	Biomasserester	biomasserester
26	biomass resource owner	détenteur de la ressource en biomasse	„Besitzer von Bio- masse- Ressourcen“; Besitzer von biogenen Ressourcen	Propietario del recurso de biomasa		bezitter van biomassa	biomassavarojen omistaja		
27	biosludge	Boue biologique	organische Schlämme	Lodo biológico	Bioslam	bio-slib	bioliete	Bioslam	bioslam
28	black liquor	Liqueur noire	Schwarzlauge / Zellstoffablauge	Lejía negra	Sort lud	black liquor	mustalipeä	Svartlut	svartlut
29	bridging; arching	pontage, voûtage	Brückenbildung	Puenteado, arqueado, abovedamiento, arqueamiento	Brodannelse	brugvorming	holvaantuminen		valvbildning, bryggbildning
30	bulk density	Masse volumique apparente	Schüttdichte	Densidad a granel o de pila	Rumvægt	stortdichtheid	irtotiheys	Bulkdensitet	skrymdensitet
31	bulk volume, loose volume	Volume apparent	Volumen von Schüttgütern (Schüttraummeter)	Volumen a granel o de pila, volumen suelto	Rummeter	stortvolume	irtotilavuus	Bulkvolum	skrymvolym
32	bundled biofuel, bundle	Fagot de biocombustible	gebündelte Biobrennstoffe, Bündel	Fardo de biocombustible, biocombustible enfardado	Bundet biobrændsel	gebundelde biobrandstof; bundel	sidottu biopolttoaine, nippu	Biobrenselbunter	buntat biobränsle

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
33	calorific value, heating value	Pouvoir calorifique	Energieinhalt, Energiewert	Poder calorífico	Brændværdi	calorische waarde, verbrandingswaarde	lämpöarvo	brennverdi	värmevärde
34	cereal crops	Cultures céréalières	Getreide	cultivos de cereal	kornafgrøder	graangewassen	viljalajit		spannmål, säd
35	char	charbon	Kohle	Residuo carbonoso	Koks	kool	jäännöshiili		kol, kolrest, kol från biomassa
36	chemical treatment	traitement chimique	chemische Behandlung	Tratamiento químico	kemisk behandling	Chemische behandeling	kemiallinen käsittely		
37	chopped straw	Paille hachée	gehäckseltes Stroh, Strohhäcksel	Paja picada	Snittet halm	versnipperd stro	silputtu olki	Halmhakk	hackad halm
38	chunkwood	Broyat / fragment de bois	Grobhackschnitzel	Trozo de madera	Chunk	houtbrokken	palahake, pieni pilke	Knott	knubbed
39	combined sample	échantillon combiné	Gesamtprobe	Muestra combinada	Råprøve	verzamelmonster	kokoomanäyte		samlingsprov
40	common sample	échantillon commun	"allgemeine" Probe	Muestra simple, muestra ordinaria	Fællesprøve	gemeenschappelijk monster	yleisnäyte		prov för olika analyser
41	complete tree	Arbre entier incluant les racines	"Ganzbaum" Biomasse	Árbol completo, árbol entero	Heltræ med rødder	complete boom	kokopuu juurakko mukaan lukien		Helträd
42	contamination	contamination	Kontamination	contaminación	forurening	Verontreiniging	saastuminen / likaantuminen		
43	cork residues	Sous-produits du liège	Korkrückstände	Residuos de corcho	Kork restprodukter	Kurkresten	korkkijäte	Korkrester	korkrester
44	critical control point	Point critique de contrôle	kritischer (Steuerungs) Kontrollpunkt	Punto crítico de control	kritisk kontrol punkt		kritinen tarkkailupiste		
45	crop production residues	culées et chutes de tronçonnage	Rückstände der Pflanzenproduktion	Residuos de la producción de cultivos	Afgrøderester	reststoffen uit de gewasproductie	kasvinviljelyn tähteet		växtodlingsrester, rester från växtodling
46	cross-cut ends	Culée et chute de tronçonnage	Kappholz	Recortes, restos de trozas	Afskæringer	Afkorteinden	tasauspätkäät	Endekapp	avkap, justerända, splittved
47	customer; client	client	Kunde	cliente					
48	cut biofuel	Biocombustible découpé	zerkleinerte Biobrennstoffe	Biocombustible cortado, biocombustible troceado	Skåret biobrændsel/snittet biobrændsel	gekapte biobrandstof	pilkottu biopolttoaine	Hugget biobrensel	hugget biobränsle
49	cutter chips	Plaquette issues des industries de transformation du bois	Industrieholzhack- schnittel, Industriehackgut	Astilla de industria de transformación de madera	Kutterspåner	Snijsnippers	kutterinlastu		kutterspån
50	delivery agreement	accord de livraison	Liefervereinbarung	contrato de suministro	leveringsaftale	Leveringsovereenko mst	toimitussopimus		leveransavtal
51	delivery lot	lot pour livraison	Lieferlos; Liefermenge	Lote de reparto; lote de suministro	leveringsparti	Geleverde partij	toimituserä		
52	demolition wood	Bois de démolition	Abbruchholz	Madera de demolición	Nedrivningstræ	Sloophout	purkupuu		rivningsvirke
53	densified biofuel, compressed biofuel	Biocombustibles densifiés	Presslinge, gepresste Biobrennstoffe	Biocombustible densificado, biocombustible comprimido	Presset biobrændsel	Verdichte biobrandstof, gecomprimeerde biobrandstof	tiivistetty biopolttoaine, puristettu biopolttoaine	Komprimert biobrensel	komprimerat biobränsle

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
54	density	Masse volumique	Dichte	Densidad	Massefylde	Dichtheid	tiheys	Densitet	densitet
55	dry ash free basis	Sur sec et sans cendre	wasser- und aschefreie; wasser- und aschefreie Bezugsbasis	base seca y libre de ceniza	Vand- og askefri basis	droge asvrije basis	tuhkattomasta kuiva-aineessa		torrt askfritt tillstånd
56	dry, dry basis	Sur sec	wasserfreie; wassefreie Bezugsbasis	seco, base seca	Vandfri basis	droge basis	kuiva-aineessa		torrt tillstånd
57	dry matter	Matière sèche	Trockenmasse	Materia seca	Tørstof	Drogestof	kuiva-aine	Tørstoff	torrsubstans
58	dry matter content	Teneur en matière sèche	Trockenmasse-gehalt	Contenido en materia seca	Tørstof indhold	drogestofgehalte	kuiva-ainepitoisuus	Tørstoffinnhold	torrhalt
59	edgings	Déignure	Spreißel	bordes	Skaller	Kantresten	särmäystähteet		kantvirke, ytor, bakar, ribb
60	end-user	utilisateur final	Endverbraucher	Usuario final	slutbruger	Eindgebruiker	loppukäyttäjä		
61	energy crops, fuel crops	Culture énergétique	Energiepflanzen; Brennstoffpflanzen	Cultivos energéticos	Energiafgrøder	energiegewassen	energiakasvit	Energivekster	energigrödor, bränslegrödor
62	energy density	Quantité d'énergie par unité de volume apparent	Energiedichte	Densidad energética	Energi tæthed	energie dichtheid	energiatiheys	energidensitet	energidensitet
63	energy forest trees	Arbre forestier à vocation énergétique	Biomasse aus Energiewäldern	árboles forestales para uso energético	Energi træ	energiebos-bomen	energiametsä	Energiskog	energiträd från medium till lång omloppstid
64	energy grain	grain énergétique	Energiekorn	Granos energéticos	energikorn	graan voor energiewinning	energiajyvä		
65	energy grass; fuel grass	Culture herbacée à vocation énergétique	Energiegräser; Brennstoffgräser	Cultivos energéticos herbáceos	Energigræs	Energiegras	energiaruoho	Energigress	energigräs, bränslegräs
66	energy plantation trees	Plantation d'arbres à vocation énergétique	Biomasse von Energieholzplantagen	cultivo de árboles para uso energético	Energiskov	energieplantage-bomen	energiaviljelmä	Energiskogstre	energiskogsträd
67	extraneous ash	Teneur en cendre exogène	Nicht vom Brennstoff stammende mineralische Rückstände	Ceniza extrínseca o ceniza exterior	Fremmed aske	as afkomstig uit externe bronnen	sekundäärituhka, tuhkan seassa olevat epäpuhtaudet		föroreningsaska
68	fibre board residues	chutes de panneaux de fibre de bois	Holzfaserplatten-rückstände	Residuos de tablero de fibras	Fiberplader restprodukter	vezelplaatreststoffen	kuitulevytähteet		fiberskiverester
69	fibre sludge	Résidu fibreux du traitement des eaux (non validated)	Schlämme aus der Zellstoffindustrie	Lodos de fibra, lodos de industria de pasta y papel	Fiber slam	vezelslib	kuituliete	Fiberslam	fiberslam
70	firewood	Bois de feu	Stückholz	Leña	Brænde	brandhout	polttopuu	Ved	brännved, spisved
71	fixed carbon	Carbone fixe, charbon de bois	gebundener Kohlenstoff	Carbono fijo	Fixed carbon, bundet kulstof	gebonden koolstof	kiinteä hiili		bundet kol
72	flowability	écoulement	Fließfähigkeit	Fluidez	Flow egenskaber	stromingsgedrag	juoksevuus	Flytbarhet	rinnbarhet
73	food processing industry residues	sous-produits des industries agroalimentaires	Rückstände der lebensmittelverarbeitenden Industrie	Residuos de la industria de procesamiento de alimentos	Restprodukter fra fødevareindustri	reststoffen uit de voedingsmiddelenindustrie	elintarviketeollisuuden tähteet		biomasserester från livsmedelsindustri

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
74	foreign material	Impureté/élément exogène	Fremdstoff	Impureza, material extraño	Fremmedlegemer	verontreiniging	vieraat aineet	Fremmed materiale	främmande material
75	forest chips	Plaquettes forestières	Waldholzhack-schnitzel, Waldhackgut	Astillas, astillas forestales	Skovflis	boshoutsnippers	metsähake	Skogsflis	skogsflis
76	forest fuels	Combustibles forestiers	forstliche Brennstoffe	Combustible forestal	Skovbrændsel	bosbrandstoffen	metsäpolttoaineet	Skogsbrensel	skogsbränslen
77	forest and plantation wood	Bois	Wald- und Plantagenholz	Biomasa forestal y plantaciones leñosas, biomasa forestal primaria	Skovtræ	Boshout	puu (suoraan metsästä)		virke, ved, trädbiomassa
78	fruit biomass	biomasse fruitière	Biomasse von Früchten	Biomasa de frutos	Frugtagtig biomasse	biomassa van vruchten	hedelmäbiomassa		fruktbiomassa, biomassa från frukt
79	fuel	combustible	Brennstoff	Combustible	Brændsel	Brandstof	polttoaine		bränsle
80	fuel classification	classification des combustibles	Brennstoffklassifizierung	Clasificación de combustible	Brændselsklassifikation	brandstofklassificatie	polttoaineen luokitus		bränsleklassificering
81	fuel dust	Combustible sous forme de sciure	staubförmiger Brennstoff	serrín de combustible	Brændselssmuld	brandstof-stof	polttoainepuru, polttoainepöly	Brenselstøv	bränslespån
82	fuel powder; fuel flour	Combustible en poudre	puderförmiger Brennstoff	Polvo de combustible	Brændselspulver/Brændselstøv	poedervormige brandstof	polttoainepöly, polttoainejauho, polttoainejauhe	Brenselpulver	bränslepulver
83	fuel product declaration	Déclaration de la qualité du combustible	Deklaration der Brennstoffqualität	Declaración de calidad del combustible	deklaration af brændselskvalitet	Declaratie van brandstofkwaliteit	polttopaineen tuoteseloste		
84	fuel specification		Brennstoffspezifizierung	Especificación de combustible	Brændselsspecifikation	brandstofspecificatie	Polttoainespesifikaatio		bränslespecifikation
85	Fuelwood; energy wood	Bois-énergie	Brennholz, Energieholz	Leña, madera para energía	Brændselstræ; Energitræ	Brandhout	polttopuu, energiapuu		brännved, skogsbränsle
86	general analysis sample	échantillon pour analyse générale	allgemeine Analysenprobe	Muestra para análisis general	Analyseprøve	analyse gereed monster	yleinen analyysinäyte		finmalt prov för fysikalisk/kemisk analys
87	green basis	à l'état vert	erntefrisch	Base verde	Grøn basis	natte basis	kosteana		färskt tillstånd
88	green chips	Plaquette verte	erntefrische Holzhackschnitzel, erntefrisches Hackgut	Astillas húmedas, astillas verdes	Grøn flis	verse houtsnippers	viherhake (tuore hake, mukana neulasia)	Rå flis	färsk flis
89	grinding dust	Poussière de broyage	Schleifstaub	Polvo de lijado, serrín-polvo de tablero	Slibestøv/Pudsestøv	Maalstof	hiontapöly	Pussestøv	slipdamm
90	gross calorific value	Pouvoir calorifique supérieur	Brennwert	Poder calorífico superior	Øvre brændværdi	(hogere) verbrandingswaarde	kalorimetrinen lämpöarvo	Bruttobrennverdi	kalorimetriskt värmevärde
91	gross density	masse volumique brute	Rohdichte	Densidad bruta, densidad en bruto	Partikel densitet	schijnbare dichtheid	klintotiheys		rådensitet
92	herbaceous biomass	Biomasse herbacée	halmgutartige Biomasse	Biomasa herbácea	Urteagtig biomasse	kruidachtige biomassa	ruohomainen biomassa	Plantebiomasse	örtartad biomassa

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
93	herbaceous fuels	Combustible herbacée	halmgutartige Brennstoffe	Combustible de origen herbáceo	Urteagtig brændsel	kruidachtige biobrandstoffen	ruohomaiset polttoaineet, peltobiomassa-polttoaineet	Plantebrensel	örtatat bränsle, örtbränsle
94	hog fuel	Combustible bois écrasé	grobes Shredderholz	Combustible triturado	Knust træ	no translation /geen vertaling	murske		bränslekross
95	horticultural residues	sous-produits horticoles	Rückstände aus Gärtnereien	Residuos hortícolas	Restprodukter fra gartnerier	reststoffen uit de tuinbouw	puutarhatähteet		trädgårdsrester, rester från trädgårdsodling
96	impurities	impuretés	Verunreinigungen	impurezas		Verontreinigingen	epäpuhtaudet		
97	increment	prélèvement élémentaire	Einzelprobe	Incremento	Delprøve; inkrement	Increment	yksittäisnäyte, primäärinäyte		delprov
98	inorganic matter		anorganische Substanz	Materia inorgánica	Uorganiske bestanddele	anorganische bestanddelen	epäorgaaninen aines	Mineralstoff	oorganiskt material
99	laboratory sample	échantillon de laboratoire	Laborprobe	Muestra de laboratorio	Laboratorieprøve	laboratorium-monster	laboratorionäyte		laboratorieprov, prov avsett för analys vid laboratorium
100	landscape management residues	sous-produits de l'aménagement paysager	Rückstände aus der Landschaftspflege	Residuos procedentes de labores de conservación y mejora del paisaje	Restprodukter fra landskabspleje	reststoffen uit het landschapbeheer	maisemanhoidon tähteet		biomasserester från landskapsvård
101	log wood	Bûche	Scheitholz (Meterscheiter)	Troza, leño	Stammetræ	Stamhout	halko	Stammevirke	helved
102	logging residues	Rémanents forestiers	Waldrestholz	Residuos de corta	Hugstaffald	Kapresten	hakkuutähde	Avvirkningsrester	Avverkningsrester
103	lot	lot	Partie	Lote	Parti	Partij	erä, toimituserä		parti (som ska kvalitetskontrolleras)
104	major elements	éléments majeures	Hauptelemente	Elementos mayoritarios		Hoofdelementen	pääalkuaineet		
105	mass-reduction	réduction de la masse	Mengenreduktion	Reducción de masa	Massereduktion	Massareductie	massan (painon) vähentyminen		reduktion av provmängd
106	mechanical strength, mechanical durability	Résistance mécanique	mechanische Festigkeit	Resistencia mecánica, durabilidad mecánica	Mekanisk styrke	mechanische sterkte	mekaaninen kestävyys, mekaaninen lujuus	Holdbarhet	mekanisk hållfasthet, mekanisk hållbarhet
107	minor elements	éléments mineures	Spurenelemente	Elementos minoritarios		sporenelementen	hivenalkuaineet		
108	moisture	Humidité	Wassergehalt	Humedad	Fugt / vand	Vocht	kosteus	Fuktighet	fukt
109	moisture analysis sample	échantillon pour analyse d'humidité	Probe für die Wassergehaltsbestimmung	Muestra para análisis de humedad	Prøve til bestemmelse af totalvand	monster voor vochtanalyse	kosteusnäyte		Fukthaltsprov
110	natural ash	Cendre non exogène	vom Brennstoff stammende mineralische Rückstände	Contenido en ceniza de un combustible no contaminado	Naturlig aske	natuurlijk as	tuhka (luonnollinen)	Naturlig askeinnhold	naturlig askhalt

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
111	net calorific value	Pouvoir calorifique inférieur	Heizwert	Poder calorífico inferior	Nedre brændværdi	stookwaarde, lagere verbrandingswaarde	tehollinen lämpöarvo	Nettobrennverdi	effektivt värmevärde
112	nominal top size	Taille maximale acceptable	nominelle Siebgröße	Tamaño nominal superior	Nominelt største kornstørrelse	nominale zeefgrootte	nimellisesti suurin palakoko		(sällstorlek som 95% av materialet passerat)
113	operator	opérateur	Betreiber	operador	operator	Opérateur	toimija		
114	organic matter	Matière organique	organische Substanz	Materia orgánica	Organiske bestanddele	Organische bestanddelen	orgaaninen aines	Organisk stoff	organsikt material
115	oscillating screen classifier	Tamis oscillant	Siebanalysegerät mit oszillierenden Sieben	Clasificador de pantalla oscilante	Rystesold	Schudzeef	täryseula		Skaksåll
116	oven dry wood	Bois anhydre	ofentrockenes Holz	Madera seca en estufa	Øvntørt træ	ovendroog hout	uunikuiva puu		absolut torr ved
117	over size particles	surcalibre	übergroße Partikel	Partículas de tamaño excesivo	Overstørrelse	overmaatse deeltjes	ylisuuret kappaleet	Overstore partikler	överstora partiklar
118	particle	particule	Partikel	partícula	partikel	Deeltje	kappale, partikkeli		partikel
119	particle board residues	Chutes de panneaux de particules	Spanplattenrückstand; Pressplattenrückstand	Residuos de tablero aglomerado	Spånplade restprodukter	spaanplaatresten	lastulevytähteet		Spånskiverester
120	particle density	Masse volumique unitaire	Partikeldichte	Densidad de partícula	Partikelmassefylde	deeltjesdichtheid	näennäistiheys, "vesitiheys"	Partikkeldensitet	partikeldensitet, fastdensitet
121	particle size	Granulométrie	Partikelgröße	Tamaño de partícula	Partikelstørrelse; Kornstørrelse	deeltjesgrootte	palakoko	Partikkelstørrelse	Partikelstorlek
122	particle size distribution	Distribution granulométrique	Partikelgrößenverteilung	Distribución de tamaño de partícula	Partikelstørrelsefordeling; Kornstørrelsesfordeling	deeltjesgrootteverdeling	palakokojakauma	Partikkelstørrelsesfordeling	partikelstorleksfordeling
123	plywood residues	Chute de panneaux contreplaqué	Rückstände der Sperrholzherstellung	Residuos de tablero contrachapado	Krydsfineraffald	multiplexresten	vaneritähteet	Kryssfinerrester	Plywoodrester
124	point of delivery	point de livraison	Anlieferungsort; Liferort	Punto de entrega	leveringssted	Leverpunt	toimituspaikka		leveranspunkt
125	pressing aid, additives	Adjuvant de densification	Bindemittel	Ayudante de prensado, aditivos	Bindemiddel	bindmiddel	sideaineet (puristukseen), lisäaine		bindemedel
126	producer	producteur	Hersteller	productor	producent	Producent	tuottaja		producent
127	proximate analysis	Analyse sommaire	Schnellanalyse (Grundanalyse)	Análisis inmediato	Proximativ analyse; Hovedanalyse	Proximate analyse	tekninen analyysi	Grovanalyse	primäranalys
128	pulverised biofuel	Biocombustible pulvérisé	pulverisierte Biobrennstoffe	Biocombustible pulverizado	Formalet biobrændsel	verpulverde biobrandstof	jauhettu biopolttoaine (pöly)		finmalt biobränsle
129	quality	qualité	Qualität	calidad	kvalitet	Kwaliteit	laatu		kvalitet
130	quality assurance	assurance qualité	Qualitätssicherung	Aseguarmiento de calidad	kvalitetssikring	Kwaliteitsverzekering	laadunvarmistus		kvalitetssikring
131	quality control	contrôle de la qualité	Qualitätslenkung	Control de calidad	kvalitetskontrol	Kwaliteitscontrole	laadunohjaus		kvalitetskontroll
132	recovered construction wood	bois de construction de récupération	recycltes Bauholz	Madera de construcción recuperada	Brugt konstruktionstræ	teruggewonnen constructiehout	kierrätetty rakennuspuu		återvunnet konstruktionsvirke

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
133	repeatability	répétabilité	Wiederholpräzision	repetibilidad	repeterbarhed	herhaalbaarheid	toistettavuus		repeterbarhet
134	reproducibility	reproductibilité	Vergleichpräzision	reproducibilidad	reproducerbarhed	Reproduceerbaarheid	uusittavuus		reproducerbarhet
135	retailer	détaillant	Einzelhändler	minorista		Handelaar	jälleenmyyjä		återförsäljare
136	rotary screen	Tamis rotatif	Trommelsieb	tamiz rotatorio	Roterende sold	Roterende scheider	rumpuseula		trumsäll
137	sample	échantillon	Probe	Muestra, probeta	Prøve	Monster	näyte		prov
138	sample preparation	preparation de l'échantillon	Probenvorbereitung	Preparación de muestra	prøveforbehandling	Monster voorbehandeling	näytteen käsittely		
139	sampling	échantillonnage	Probenahme	muestreo	prøvetagning	Monsternamme	näytteenoto		provtagning
140	sampling form	forme de l'échantillonnage	Probenahmeprotokoll	Forma de muestreo		Monsternamme formulier	näytteen muoto		
141	sampling plan	plan d'échantillonnage	Probenahmeplan	Plan de muestreo	prøvetagningsplan	Monsternamme plan	näytteenotto-suunnitelma		
142	sampling record	registre de l'échantillonnage	Probenahmebericht	Registro de muestreo	Prøvetagningsrapport	Monsternamme rapport	näytteenottoluettelo		
143	sample size reduction	reduction de la taille de l'échantillon	Reduktion der Partikelgröße	Reducción del tamaño de la muestra; reducción de tamaño	Kornstørrelsesreduktion; størrelsesreduktion	monster grootteverkleining; verkleining	näytteen jakaminen, näytekoon pienentäminen		reduktion av provets partikelstorlek
144	sawdust	Sciure	Sägespäne	Serrín	Savsmuld	Zaagsel	sahanpuru	Sagflis	sågspån
145	short rotation trees	Arbres à croissance rapide	Bäume aus Kurzumtrieb	árboles en turno corto	Energiskov	korte omloop bossen	lyhytkiertopuut		snabbväxande träd
146	shredded biofuel	Biocombustible déchiqueté	geschredderte Biobrennstoffe	Biocombustible triturado	Sønderdelt biobrændsel	versnipperde biobrandstof	revitty, pilkottu biopolttoaine	Såldet biobrensel	krossat eller rivet biobränsle
147	size analysis sample	échantillon pour analyse granulométrique	Analyseprobe für die Partikelgrößenverteilung	Muestra para el análisis de tamaño	Prøve til sigteanalyse	monster voor deeltjesgrootte analyse	partikkelikokoäyte, seulontanäyte	Bakhorn	prov för partikelstorleksbestämning
148	slabs	Dosses	Schwarte	Costeros	Skaller	aanzaagdelen /aflopers	sahauspinnat, losot		avkap, justerända, splittved
149	smallwood	Bûchette	Kleinholz	Madera pequeña	Brænde	Kleinhout	pienpuu, pilke	Fastbiobrensel	småved
150	solid biofuel	Biocombustible solide	feste Biobrennstoffe	Biocombustible sólido	Fast biobrændsel	Vaste biobrandstoffen	kiinteä biopolttoaine	Fastvolum	fast biobränsle
151	solid volume	Volume réel	Festvolumen (Festmeter)	Volumen sólido	Fast masse	massief volume	kiintotilavuus	Løsvolum	fastvolym
152	stacked volume	Volume d'encombrement	Raumvolumen (Raummeter)	Volumen apilado	Stablet rummeter	gestapeld volume	pinotilavuus		travvolym
153	stemwood	Grumes	Stammholz	Fuste, madera de tallo, madera de tronco	Stammetræ	stamhout	runkopuu		stamved
154	stemwood chips	plaquettes issues de grumes	Hackschnitzel aus Stammholz, Hackgut aus Stammholz	Astillas de fuste, astillas de tronco de madera	Stammetræsflis	stamhoutsnippers	rankahake		stamvedsflis
155	stump	souche	Stumpf	Tocón	Stød	Stronk	kanto		stubbe

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
156	sub-lot	sous-lot	Teilpartie	Sublote	Prøvetagningsparti	sub-partij	toimitetun erän osa, analysoitavan erän osa		del av parti (som ska kvalitetskontrolleras)
157	sub-sample	sous-échantillon	Teilprobe	Submuestra	Delprøve	deelmonster	osanäyte		delprov
158	supplier	fournisseur	Lieferant	suministrador	leverandør	Leverancier	toimittaja		leverantör
159	supply chain	chaîne d'approvisionnement	Lieferkette	Cadena de suministro	forsyningskæde	Aanvoerketen	toimitusketju		
160	test portion	prise d'essai	Prüfmenge	Porción para ensayo	Analyseportion	Testmonster	testaukseen/analy- sointiin tarkoitettu analyysinäytteen osa		del av laboratorieprov (för specifik analys)
161	test sample	échantillon pour essai	Versuchsprobe	Muestra de ensayo	test prøve	Test monster			
162	thinning residues	Sous-produits d'éclaircie	Durchforstungs- rückstände	Residuos de claras	Tyndingstræ	dunningsresten	harvennuksien hakkuutähteet	Tynningsrester	röjningsrester / gallningsrester
163	total ash	Teneur en cendre	Gesamtgehalt an Asche; Aschegehalt	Ceniza total	Total aske	totaal as	kokonaistuhkapi- toisuus	Askeinnhold	askhalt
164	total carbon	Teneur en carbone	Gesamtgehalt an Kohlenstoff	Carbón total	Total kulstof	totaal koolstof	Kokonaishiihi- pitoisuus	Karboninnhold	Kolhalt
165	total chlorine	teneur en chlore	Gesamtgehalt an Chlor	Cloro total	Total chlor	Totaal chloor	kokonaiskloori- pitoisuus		
166	total hydrogen	Teneur en hydrogène	Gesamtgehalt an Wasserstoff	Hidrógeno total	Total brint	totaal waterstof	kokonaisvety- pitoisuus	Hydrogeninnhold	Vätehalt
167	total mass	masse totale	Gesamtmasse	Masa total	Total masse	Totaal massa	kokonaismassa		
168	total moisture	Taux d'humidité	Gesamtgehalt an Wasser; Wassergehalt	Humedad total	Total vand	totaal vocht	kokonaiskosteus- pitoisuus	Fuktighetsinnhold	Fukthalt
169	total nitrogen	Teneur en azote	Gesamtgehalt an Stickstoff	Nitrógeno total	Total kvælstof	totaal stikstof	kokonaistyppi- pitoisuus	Nitrogeninnhold	Kvävehalt
170	total oxygen	Teneur en oxygène	Gesamtgehalt an Sauerstoff	Oxígeno total	Total ilt	totaal zuurstof	kokonaishappi- pitoisuus	Oksygeninnhold	Syrehalt
171	total sulphur	Teneur en soufre	Gesamtgehalt an Schwefel	Azufre total	Total svovl	totaal zwavel	kokonaisrikki- pitoisuus	Svovelinhold	Svavelhalt
172	tree section	Houpiers démembrés/ cîmes démembrées	Baumabschnitt	Troza con ramas, sección de árbol	Træ dele	Boomdeel	osapuu	Stammeseksjoner	Träd-del
173	ultimate analysis, elementary analysis	Analyse élémentaire	Elementaranalyse	Análisis elemental	Ultimativ analyse; Elementær analyse	ultimate analyse, elementaire analyse	alkuaineanalyysi, elementaarianalyysi	Totalanalyse	elementaranalys
174	used wood	Bois usagé	Gebrauchtholz	Madera usada	Brugt træ	gebruikt hout	käytetty puu kai puutuote, kierrätyspuu		använt virke, returträ
175	viscose residues	Sous-produits de la pâte à dissoudre	Rückstände der Viskoseerzeugung	Residuos de la fabricación de la viscosa	Viscoserester	viscose-reststoffen	viskoositähteet		viskosrester
176	volatile matter	Matière volatile	flüchtige Bestandteile	Materia volátil	Flygtige bestanddele	vluchtige bestanddelen	haihtuvat aineet	Flyktig stoff	flyktiga ämnen

	English	French	German	Spanish	Danish	Dutch	Finnish	Norwegian	Swedish
177	volume	Volume	Volumen	Volumen	Volumen	Volume	tilavuus	Volum	volym
178	water soluble content	contenu soluble dans l'eau	wasserlöslicher Gehalt	Contenido soluble en agua		Deel oplosbaar in water	vesiliukoinen osa		
179	wet basis	Sur humide/sur brut	Bezugsbasis Feuchtmasse	Base húmeda o base fresca	Våd basis	natte basis	märkäpainosta		vått tillstånd
180	whole tree	Arbre entier	Vollbaum	Árbol apeado, árbol entero	Heltræ	gehele boom	kokopuu, juurakko poislukien	Heltre	helträd
181	whole-tree chips	Plaquettes issues d'arbre entier	Holzhackschnitzel aus Vollernteverfahren, Hackgut aus Vollernteverfahren	Astillas procedentes de árbol entero	Heltræsflis	snippers van de gehele boom	kokopuuhake	Heltreflis	helträdsflis
182	wood chips		Holzhackschnitzel, Hackgut ¹⁾	Astillas	Træflis	houtsnippers	puuhake		träflis
183	wood fuels, wood based fuels, wood-derived biofuels	Combustibles ligneux	Holzbrennstoffe; holzbasierter Brennstoffe	Combustibles de madera, biocombustibles derivados de madera	Træbrændsel	houtbrandstoffen, op hout gebaseerde brandstoffen, van hout afgeleide brandstoffen	puupolttoaineet, puuperäiset polttoaineet	Trebrænsel	trädbränslen
184	wood processing industry by-products and residues	Sous-produits des industries de la transformation du bois	Industrierestholz	Residuos y sub-productos de la industria de la madera	Restprodukter fra træindustri	reststoffen uit de houtverwerkende industrie	puujalostusteollisuuden sivutuotteet ja tähteet		träindustrirester, rester från träindustri
185	wood shavings; cutter shavings	Copeaux	Hobelspäne	Virutas	Træspåner / Høvlspåner	houtschaafsel, snijmachine-schaafsel	puulastut, höyläyslastut	Høvelspon	(hyvel)spån
186	woody biomass	Biomasse ligneuse	Holzartige Biomasse	Biomasa leñosa	Træagtig biomasse	houtachtige biomassa	puubiomassa	Trebiomasse	trädbiomassa

1) Austrian expression.

Annex B
(informative)

List of terms defined by CEN/TS 15357:2006 – Solid recovered fuels

Identical definitions within CEN/TS 15357:2006	Modified definitions within CEN/TS 15357:2006	Additional definitions within CEN/TS 15357:2006
as received ash content ash deformation temperature ash flow temperature ash fusibility ash hemisphere temperature ash sphere temperature biofuel bridging bulk density calorific value combined sample common sample delivery agreement dry dry ash free dry matter dry matter content energy density flowability fuel gross calorific value increment laboratory sample lot mass-reduction mechanical durability moisture net calorific value nominal top size over size particles particle particle density particle size particle size distribution point of delivery producer proximate analysis	biomass	biodegradable biogenic briquette chips classification of solid recovered fuel coefficient of variation co-incineration co-incineration plant collection tray component of solid recovered fuel componstion of solid recovered fuel digestion digestion vessel drying effective increment size effective sample size emission fluff fraction separation fuel characterisation fundamental error halogen content heterogeneity homogenisation homogeneity incineration incineration plant material flow metallic aluminium microwave unit mixed municipal waste incineration incineration plant material flow metallic aluminium microwave unit oxygen combustion particle size reduction

Identical definitions within CEN/TS 15357:2006	Modified definitions within CEN/TS 15357:2006	Additional definitions within CEN/TS 15357:2006
sample sample preparation sampling sampling form sampling plan sampling record size analysis sample solid biofuel solid volume test portion total carbon total hydrogen total moisture total nitrogen total oxygen total sulphur ultimate analysis volatile matter		pellet pre-treated waste probalistic sample random sampling renewable energy sources sample container separate collection shredding solid recovered fuel sorting sorting at source specification specification of solid recovered fuels stacked volume test sample total organic carbon XRF waste waste supplier

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