## Overview of European standards and international standards on solid biofuels

*As of January 2013*

Below table provides an overview of European and international standards on solid biofuels. The European Standards are developed in CEN/TC 335 "Solid biofuels". Most of the standards on the work programme of CEN/TC 335 have been formally published as European (EN) standards. The international standards are developed in ISO/TC 238 "Solid biofuels". The standards on the work programme of ISO/TC 238 are either still under development or the process should formally be initiated. The list of (future) international standards is based on the information available at the so-called ISO Project Portal (31 January 2013); the work programme may extend in future. The work programme of ISO/TC 238 shows much overlap with the work programme of CEN/TC 335, noting that differences exist. For example, where the European standards on fuel specifications and classes (EN 14961 series) focus on non-industrial use, the international standards on this topic (future ISO 17225 series) enlarge the scope to industrial use as well.

| **European standards (EN)**  *If dated, the (draft) standard is published and publicly available* | | |  | **International standards (ISO)**  *If dated, the (draft) standard is published and publicly available* | |
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| **Terminology** | | |  | **Terminology** | |
| EN 14588:2010 | | Solid biofuels – Terminology, definitions and descriptions |  | ISO/DIS 16559 | Solid biofuels -- Terminology, definitions and descriptions |
| **Fuel specifications and classes** | | |  | **Fuel specifications and classes** | |
| EN 14961-1:2010 | | Solid biofuels – Fuel specifications and classes – Part 1: General requirements |  | ISO/DIS 17225-1 | Solid biofuels -- Fuel specifications and classes -- Part 1: General requirements |
| EN 14961-2:2011 | | Solid biofuels – Fuel specifications and classes – Part 2: Wood pellets for non-industrial use |  | ISO/DIS 17225-2 | Solid biofuels -- Fuel specifications and classes -- Part 2: Graded wood pellets |
| EN 14961-3:2011 | | Solid biofuels – Fuel specifications and classes – Part 3: Wood briquettes for non-industrial use |  | ISO/DIS 17225-3 | Solid biofuels -- Fuel specifications and classes -- Part 3: Graded wood briquettes |
| EN 14961-4:2011 | | Solid biofuels – Fuel specifications and classes – Part 4: Wood chips for non-industrial use |  | ISO/DIS 17225-4 | Solid biofuels -- Fuel specifications and classes -- Part 4: Graded wood chips |
| EN 14961-5:2011 | | Solid biofuels – Fuel specifications and classes – Part 5: Firewood for non-industrial use |  | ISO/DIS 17225-5 | Solid biofuels -- Fuel specifications and classes -- Part 5: Graded firewood |
| EN 14961-6:2012 | | Solid biofuels – Fuel specifications and classes – Part 6: Non-woody pellets for non-industrial use |  | ISO/DIS 17225-6 | Solid biofuels -- Fuel specifications and classes -- Part 6: Graded non-woody pellets |
|  | |  |  | ISO/DIS 17225-7 | Solid biofuels -- Fuel specifications and classes -- Part 7: Graded non-woody briquettes |
| **Fuel quality assurance** | | |  | **Fuel quality assurance** | |
| EN 15234-1:2011 | | Solid biofuels – Fuel quality assurance – Part 1: General requirements |  | ISO/CD 17588 | Solid biofuels -- Fuel quality assurance |
| EN 15234-2:2012 | | Solid biofuels – Fuel quality assurance – Part 2: Wood pellets for non-industrial use |  |  |  |
| EN 15234-3:2012 | | Solid biofuels – Fuel quality assurance – Part 3: Wood briquettes for non-industrial use |  |  |  |
| EN 15234-4:2012 | | Solid biofuels – Fuel quality assurance – Part 4: Wood chips for non-industrial use |  |  |  |
| EN 15234-5:2012 | | Solid biofuels – Fuel quality assurance – Part 5: Firewood for non-industrial use |  |  |  |
| EN 15234-6:2012 | | Solid biofuels – Fuel quality assurance – Part 6: Non-woody pellets for non-industrial use |  |  |  |
|  | |  |  | ISO/NP 17589 | Solid biofuels -- Conformity assessment for fuel quality assurance |
| **Sample and sample preparation** | | |  | **Sample and sample preparation** | |
| EN 14778:2011 | | Solid biofuels – Sampling |  | ISO/NP 18135 | Solid biofuels -- Sampling |
| EN 14780:2011 | | Solid biofuels – Sample preparation |  | ISO/NP 14780 | Solid biofuels -- Sample preparation |
| **Physical and mechanical properties** | | |  | **Physical and mechanical properties** | |
| EN 14774-1:2009 | Solid biofuels – Determination of moisture content – Oven dry method – Part 1: Total moisture – Reference method | |  | ISO/CD 18134-1 | Solid biofuels -- Determination of moisture content -- Oven dry method -- Part 1: Total moisture -- Reference method |
| EN 14774-2:2009 | Solid biofuels – Determination of moisture content – Oven dry method – Part 2: Total moisture – Simplified method | |  | ISO/CDP 18134-2 | Solid biofuels -- Determination of moisture content -- Oven dry method -- Part 2: Total moisture - Simplified method |
| EN 14774-3:2009 | Solid biofuels – Determination of moisture content – Oven dry method – Part 3: Moisture in general analysis sample | |  | ISO/NP 18134-3 | Solid biofuels -- Determination of moisture content -- Oven dry method -- Part 3: Moisture in general analysis sample |
| EN 14775:2009 | Solid biofuels – Determination of ash content | |  | ISO/CD 18122 | Solid biofuels -- Determination of ash content |
| EN 14918:2009 | Solid biofuels – Determination of calorific value | |  | ISO/NP 18125 | Solid biofuels -- Determination of calorific value |
| EN 15103:2009 | Solid biofuels – Determination of bulk density | |  | ISO/CD 17828 | Solid biofuels -- Determination of bulk density |
| EN 15148:2009 | Solid biofuels – Determination of the content of volatile matter | |  | ISO/CD 18123 | Solid biofuels -- Determination of the content of volatile matter |
| EN 15149-1:2010 | Solid biofuels – Determination of particle size distribution – Part 1: Oscillating screen method using sieve apertures of 1 mm and above | |  | ISO/CD 17827-1 | Solid biofuels -- Determination of particle size distribution for uncompressed fuels -- Part 1: Horizontally oscillating screen using sieve for classification of samples with a top aperture of 3.15 mm and above |
| EN 15149-2:2010 | Solid biofuels – Determination of particle size distribution – Part 2: Vibrating screen method using sieve apertures of 3,15 mm and below | |  | ISO/CD 17827-2 | Solid biofuels -- Determination of particle size distribution for uncompressed fuels -- Part 2: Vertically vibrating screen using sieve for classification of samples |
| CEN/TS 15149-3: 2006 | Solid Biofuels – Methods for the determination of particle size distribution – Part 3: Rotary screen method | |  |  |  |
| EN 15150:2011 | Solid biofuels – Determination of particle density | |  |  |  |
| EN 15210-1:2009 | Solid biofuels – Determination of mechanical durability of pellets and briquettes – Part 1: Pellets | |  | ISO/CD 17831-1 | Solid biofuels -- Methods for the determination of mechanical durability of pellets and briquettes -- Part 1: Pellets |
| EN 15210-2:2010 | Solid biofuels – Determination of mechanical durability of pellets and briquettes – Part 2: Briquettes | |  | ISO/CD 17831-2 | Solid biofuels -- Methods for the determination of mechanical durability of pellets and briquettes -- Part 2: Briquettes |
| EN 16126:2012 | Solid biofuels – Determination of particle size distribution of disintegrated pellets | |  | ISO/CD 17830 | Solid biofuels -- Determination of particle size distribution of disintegrated pellets |
| EN 16127:2012 | Solid biofuels – Determination of length and diameter for pellets and cylindrical briquettes | |  | ISO/CD 17829 | Solid biofuels -- Determination of length and diameter of pellets |
| **Chemical analysis** | | |  | **Chemical analysis** | |
| EN 15104:2011 | | Solid biofuels – Determination of total content of carbon, hydrogen and nitrogen – Instrumental methods |  | ISO/DIS 16948 | Solid biofuels -- Determination of total content of carbon, hydrogen and nitrogen |
| EN 15105:2011 | | Solid biofuels – Determination of the water soluble chloride, sodium and potassium content |  | ISO/DIS 16995 | Solid biofuels -- Determination of the water soluble content of chloride, sodium and potassium |
| EN 15289:2011 | | Solid biofuels – Determination of total content of sulfur and chlorine |  | ISO/DIS 16994 | Solid biofuels -- Determination of total content of sulphur and chlorine |
| EN 15290:2011 | | Solid biofuels – Determination of major elements – Al, Ca, Fe, Mg, P, K, Si, Na and Ti |  | ISO/DIS 16967 | Solid biofuels -- Determination of major elements |
| EN 15296:2011 | | Solid biofuels – Conversion of analytical results from one basis to another |  | ISO/DIS 16993 | Solid biofuels -- Conversion of analytical results from one basis to another |
| EN 15297:2011 | | Solid biofuels – Determination of minor elements – As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V and Zn |  | ISO/DIS 16968 | Solid biofuels -- Determination of minor elements |
|  | |  |  | ISO/CD 16996 | Solid biofuels -- Determination of elemental composition by X-ray fluorescence |

ISO/CD Committee Draft developed by ISO (draft available for members only)

ISO/DIS Draft International Standard (draft available for public enquiry)

ISO/NP New Project by ISO, but standard development to be initiated