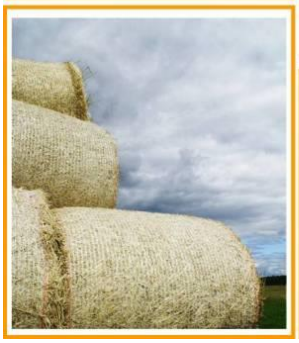





SolidStandards

Enhancing the implementation of quality and sustainability standards and certification schemes for solid biofuels (EIE/11/218)



D6.1c
National Industry Position Paper
Denmark

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The SolidStandards project

The SolidStandards project addresses ongoing and recent developments related to solid biofuel quality and sustainability issues, in particular the development of related standards and certification systems. In the SolidStandards project, solid biofuel industry players will be informed and trained in the field of standards and certification and their feedback will be collected and provided to the related standardization committees and policy makers.

SolidStandards is coordinated by:

WIP Renewable Energies
Sylvensteinstrasse 2
81369 Munich, Germany
Cosette Khawaja & Rainer Janssen
cosette.khawaja@wip-munich.de
rainer.janssen@wip-munich.de
Tel. +49 (0)89 72012 740

About this document

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FORCE Technology

Hjortekaersvej 99
DK-2800 Kongens Lyngby
Morten Tony Hansen
Email: mth@force.dk
Tel. +45 7215 7755

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Foreword

CEN, the European Committee for Standardisation, represented in the Solid Standards consortium by NEN, is interested in gathering the opinions of industry representatives for the development of new standards, the revision of existing standards, and the representation of European interests within international standardisation (ISO) procedures. The SolidStandards project offers an excellent opportunity to collect a large number of viewpoints through direct contact with industry representatives. In addition, a broader, public approach has been applied to collect feedback from industry players other than those participating in trainings. Furthermore, experience gained through the project has been used to provide recommendations to CEN and the solid biofuel community how to cope with new developments on solid biofuel markets.

The findings of this task under work package 6 of the SolidStandards project will be summarised in a final European industry position paper on international standards for solid biofuels.

This report contains the feedback collection and analysis from Denmark.

This national report includes the following:

1. Description of national solid biofuel market
2. Description of standardisation activities
3. Description of certification activities
4. Overview of standardisation and certification needs
5. Results of discussion with national mirror committee
6. Summary of national industry needs

The objectives are:

- To explain the industry points of view to standardisation committees
- To initiate and support the development of additional standards (e.g. on biomass storage)
- To increase the practical applicability of standards under development
- To bring European industry viewpoints into on-going CEN and ISO standardisation processes
- To provide the necessary feedback on existing standards in order to facilitate their revision in the future.

FORCE Technology has been discussing this national industry paper with the national mirror committee of Dansk Standard in Denmark.

NEN will consolidate all national papers to one, overall European industry position paper about international standards for solid biofuels. The final European industry position paper will be presented to CEN/TC 335 and/or ISO/TC 238 and distributed among the members of these technical committees.

1. Description of the Danish solid biofuel market

1.1. General description of the market

Fuels from solid biomass has for decades constituted an important part of the total energy supply and the main part of the renewable energy supply in Denmark. According to the 2011 energy statistics from the Danish Energy Agency, solid biomass covers for 10% of the total primary energy generation and 62% of the renewable energy generation.

In a consumption view, 15% of the total energy consumption and 68% of the energy consumption based on renewables is covered by solid biomass as shown in the figure below.

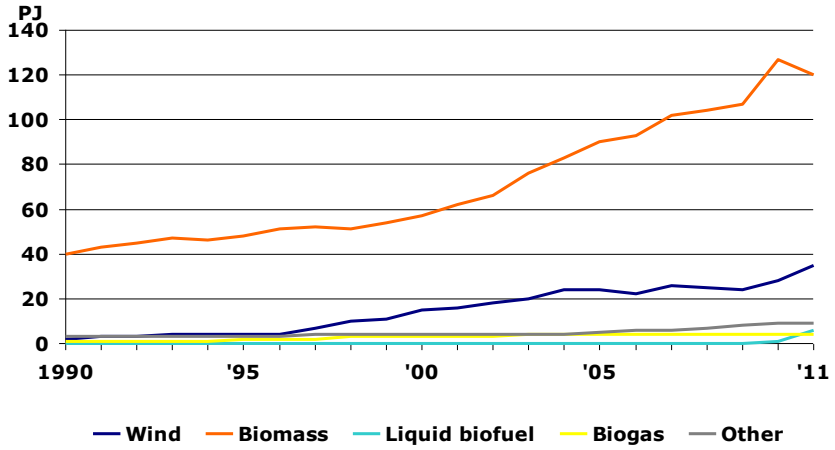

Figure 1. Danish RE consumption 2011. Danish Energy Agency 2012.

Solid biofuels are used in all sizes of plants ranging from stoves and small boilers in private homes over medium sized plants in service and industry sectors and district heating up to application in large combustion plants generating electricity and heat at high efficiency levels.

Wood fuels now clearly account for the major part of the market, however Denmark is a large consumer of straw for energy. Through decades suppliers and plant owners have developed equipment that in an efficient way delivers on the politically dictated straw energy market. Danish straw fired CHP plants operate at advanced steam data and efficient straw combustion technology is one of the Danish success stories within solid biomass.

Danish suppliers offer technology for heating plants, CHP plants and auxiliary equipment in the above mentioned sizes and for all sorts of fuels. Outstanding is also the Danish experience with the development of thermal gasification of solid biomass for CHP purposes where both small scale wood fired CHP and large scale straw gasification for co-firing have proven many operational hours and are coming closer to commercial.

Combined heat and power generation is a hallmark of the Danish energy system and probably the most important single measure to help decouple growth and energy consumption/environmental load. Application of CHP technology has been possible due to the very widespread district heating systems that has also allowed for the application of solid biomass plants - especially pellet fired plants.

In Denmark more than half of the residential heat demand is supplied via district heating. The utilisations of wood pellets started in the district heating sector in the late 1980'es when coal fired heating plants were converted to use wood pellets. The annual pellet consumption quickly reached around 100,000 tonnes and since the beginning of the 1990'es this has been the consumption level in the district heating sector.

From the mid 1990'es the wood pellet consumption in individual boilers for space heating in private dwellings, public institutions and other large buildings increased rapidly. The drivers would be fuel tax exemption (in combination with high taxes on fossil fuels for heating purposes) and from 1995 an investment subsidy scheme for wood fired combustion systems with a nominal capacity below 250 kW. During 10 years the wood pellet consumption had more than tripled which made the Danish market the second largest in Europe only exceeded by Sweden.

Based on a variety of drivers parts of the Danish utility sector started to show interest in co-firing wood pellets into PC boilers in the beginning of the new century. This resulted in a significant amount of wood pellets being utilised mainly in the advanced Avedøre 2 power plant south of Copenhagen.

Wood pellet production in Denmark started in the 1980'es based on the first experiences from US and Sweden and the feed pellet production in order to accommodate the demand from the district heating plants. The production was initially based on dry wood residues from the numerous wood processing industries. In the beginning of the century the national production capacity and actual production at around 200,000 t/y was able to cover half of the demand. In 2012 the production had decreased to around 100,000 t/y due to changes in the feedstock availability. As the demand has increased rapidly almost 2 million tonnes in 2012 - Denmark has become the worlds largest pellet importing country.

Efficient drivers provide for wood pellets being used in all sizes of combustion plants, from small boilers in single family houses and small block heating centrals over medium sized district heating plants up to large power plants producing power and heat for large district heating systems.

Around one fifth of the Danish wood pellet consumption is used in small and medium sized pellet boilers for heating purposes (2012). Pellets stoves are only slowly entering the market. District heating plants and power plants together account for the 4/5 of the present consumption. This share is, however, expected to change as further large growth is foreseen in the utility sector. In the residential heating market, the very high taxes on oil and gas for heating are the significant drivers. When the basic oil and gas prices are high too, pellet heating becomes very favourable.

New data published by the Danish Energy Agency reveals that the Danish market development has been strongly influenced by changes in political framework conditions. During the late 1990s the Danish market for residential pellets boilers was one of the most dynamic markets in Europe. A sudden change of policies was introduced by a new conservative/liberal government which cancelled all subsidies for renewable energies. This led to an immediate decline in the market growth after the year 2000.

Due to limited domestic feedstock for pellet production the amount of imported wood pellets is growing significantly; in 2012 95 % of the Danish wood pellet consumption is imported.

The framework conditions for electricity production based on renewables in Denmark is given by a feed-in tariff system, the implementation of the EU scheme for greenhouse gas emission allowance trading which has regulated CO_2 emissions from January 2005 and a liberalized electricity market. Further the Biomass Agreement from 1993 sets a framework for use of biomass in large scale power plants; it works like a biomass quota system. To some extend, also feed-in tariff support applies. Since spring 2007 the pellet prices in Denmark have remained constant at a level which is low enough to encourage consumers to change for pellets and high enough to be attractive for suppliers.

Type of organization active on market	Estimate number of companies active on market	Comments
Solid biofuel producers	Wood pellets: 9 Straw: 30,000 Forest chips: 200 Log wood: 500 Non-woody pellets: 0	Pellets: Dominated by three large companies. Wood chips: dominated by two large forest operators, Danish Nature Agency and HedeDanmark
Solid biofuel trader and/or logistics providers	> 30,000	
Solid biofuel users: small-medium sized (< 1 MW_{th})	800,000	
Solid biofuel users: large scale (> 1 MW_{th})	170	
Consumer association [name]	4	Pilleklubben Stoker Pro Danish District Heating Association Danish Energy Association
Industrial association [name]	5	DI Bioenergy The Biofuel Association Danish Forest Association Danish Straw Suppliers Danish Agriculture & Food Council
Combustion, gasification or fuel production equipment manufacturers	100	
Certification, inspection or testing bodies	5-10	
Laboratory / Research organization	10	
Otherwise, [please specify]	-	

1.2. General figures of the market

The figure below gives general figures about the Danish volumes of solid biofuel production and consumption.

Solid biofuel production figures per type of biofuel **)	**Overall annual turnover x.1.000 EUR*)**			**Overall production volume 1000 ton/year**		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**
Total						
Wood pellets		12			100	
Wood briquettes		-			1	
Wood chips	67,000			1,200		
Firewood	67,000***)			1,100		
Non-woody pellets		0		42	0	
Straw	105,000			1,300		
Energy consumption per type of consumer **)	**Overall annual turnover x.1.000 EUR*)**			**Overall solid biofuel consumption TJ/year**		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**
Total					98,000	
Small-medium sized (< 1 MW)					53,000	
Large-scale (> 1 MW)					45,000	

*) Estimates by FORCE Technology based on data available during the SolidStandards project (2013)

**) Source: Danish energy statistics by Danish Energy Agency and FORCE Technology

***) as only 1/3 of the production is traded

2. Standardisation activities

2.1. National standardisation activities

In Denmark the national committee S-358 Biofuels at the Danish Standards Foundation is the mirror committee for CEN/TC 335 and ISO/TC 238.

The committee meets once a year and the current members of the committee are representatives from:

- Daka Denmark A/S (Liquid biofuel supplier)
- DONG Energy A/S (Utility company)
- Danish Oil Industry Association EOF (Business association for Danish petroleum companies)
- FORCE Technology (Advanced technology company)
- Novozymes A/S (Enzyme supplier)
- Danish Technological Institute (Advanced technology company)
- Vattenfall A/S Generation Nordic, Thermal Power (Utility company)

Apart from the solid biofuel standards, members of the committee are also involved with other standards:

- CEN TC 19 Petroleum products, lubricants and related products
- CEN TC 383 Sustainably produced biomass for energy applications
- ISO TC 248 Project committee; Sustainability criteria for bioenergy"
- ISO TC 255 Biogas

2.2. National standards

Apart from the European standards, Denmark has no national standards on solid biofuels.

From 1996 until the European Technical Specifications were published by CEN/TC 335, Danish actors have operated according to a set of "Recommended analysis methods". The recommendations were published in the scope of a large solid biomass characterisation project managed by FORCE Technology[1] and with participation of RISØ National Laboratory, ELSAM and Elkraft[2].

Danish legislation touches on fuel origin as an executive order defines which types of solid biomass that can be used as a fuel and combusted in ordinary combustion plants. This includes waste from agriculture, forestry and companies working with biomass such as sawmills and furniture manufacturers.

Also, Nordic Ecolabelling provides their "Swan Label" for pellets complying with a set of criteria partly similar to some of the properties required in the standard.

2.3. Uptake of European standards

2.3.1. General situation

Quality standards are still not a very big issue in the Danish solid biofuels market.

[1] At that time called dk-TEKNIK ENERGY & ENVIRONMENT
[2] ELSAM and Elkraft were the utility companies in Jutland/Fünen respectively on Sealand, they have now merged into DONG Energy while some of the plants were sold and are operated by Vattenfall.

At accredited laboratories such as FORCE Technology, fuels are analysed according to the respective standards, however in the market place, generally only a small choice of fuel properties are used in the daily trading and utilisation arrangements.

In the straw market, moisture content (i.e. the heating value) is the main parameter determining whether the consumer will accept the fuel or not as well as the fuel price.

Wood chips are also traded according to moisture content, however size distribution as well as a general indication of geographic origin matter.

The pellet market is currently the fastest growing part of the solid biomass business. In the small and medium scale markets pellets are to a wide extent purchased according to proprietary standards such as "HP-quality", "Stampemøllen" etc. and according to the consumer's previous experiences and positive appraisals from friends and colleagues. Some traders classify pellets alone according to the ash content.

This does, however, not imply that the pellets used in Denmark are of a low quality. If the consumer experiences problems with high ash content, problematic ash, slagging etc. it will be difficult for the dealer to continue operation for a longer period of time. Such branding is popular; however standards and certification schemes are increasingly being applied.

2.3.2. Specific feed back

In the course of two trainings representatives from the Danish industry provided information and points of view on the uptake of standards. 37 respondents have used the feed back form from the project and some have indicated the current and possible future application of existing EN standards.

The results of the feedback show a generally limited current uptake of standards in Denmark:

- 9 respondents indicate that they are using EN 14588 on terminology
- 14 respondents indicate that they are using the general part (Part 1) of EN 14961 on fuel specifications, while 10 indicate they are using Part 2 on wood pellets. There are less using the other parts
- 7 respondents indicate that they are using the general part (Part 1) of EN 15234 on quality assurance, while less are using the other parts
- 8-11 respondents indicate that they are using EN standards on sampling, determination of moisture content, calorific value, bulk density, particle size distribution and mechanical durability
- Less than 8 respondents indicate that they are currently using standards for determination of other properties than the above mentioned.

Regarding the future application of standards, the following outcome from the respondents appears:

- 9 respondents indicate that they will be using EN 14588 on terminology - 6 of the respondents are currently not
- 14 respondents indicate that they will be using the general part (Part 1) of EN 14961 on fuel specifications, of these 8 are currently not. 14 indicate they will be using Part 2 on wood pellets, of these 11 are currently not doing so. There are lower indications on the future use of the other parts of EN 14961
- 13 respectively 12 respondents indicate that they will be using the general part (Part 1) and the wood pellet part (Part 2) of EN 15234 on quality assurance, of these 9 (in both cases) have indicated that they are not currently using the standards. There are lower indications on the future uptake of the other parts of EN 15234
- 15 respondents (of these 10 new) indicate that they will be using EN 14778 on solid biofuels sampling
- 7-10 respondents indicate that they are using EN standards on determination of moisture content, calorific value, bulk density, particle size distribution, mechanical durability and determination of total content of carbon, hydrogen and nitrogen

- Less than 7 respondents indicate that they will be using standards for determination of other properties than the above mentioned.

As to which of the current standards are very important to the biomass market in the opinion of the respondent, four indicate that parts of EN 14961 are important, while one indicate 15234-2. One respondent accentuate EN 14961-1 as "a tool which gives a common and unambiguous language for specification and characterization of the solid bio fuels". One indicate the importance of a number of more specific standards: EN 14774-2 (Simple determination of moisture), EN 15103 (Determination of bulk density), EN 15210 (Determination of mechanical durability) and EN 14775 (Determination of ash content). Two indicate DINplus and one A1 (which must be understood as ENplus).

3. Certification activities

While certification schemes for some parts of the biofuel supply chain are common - e.g. approvement of small scale biomass boilers and installers or quality management certification at large biomass plants - certification of fuel quality is not very widespread in Denmark due to the reasons described in 2.3.1.

Two Danish pellet manufacturers operate with a DINplus certification, however, one of them has now ceased production. The other also is certified according to ENplus. An ENplus certificate is also held by the pellet trader Ekman Denmark. There are currently no ENplus certification bodies or inspection bodies in Denmark.

More private Danish companies have considered providing fuel pellet certification. Danish Technological Institute (DTI) offers a quality assurance system which consists of repeated analysis of chemical and physical fuel properties according to the table below and a license to use the DTI name and logo for marketing purposes[3].

Parameter	Method
Moisture content	EN 14774 – 2:2009
Ash content	EN 14775:2009
Mechanical durability	EN 15210-1:2009
Density	EN 15103:2009
Heating value	EN 14918:2009
Fines in raw material	EN 15149:2 2010
Slagging tendency	DTI method
Pellet diameter and length	EN 16127:2012
Visual control of the pellets	Assessed by the laboratory staff

The newly founded Danish Biofuel Association is providing a biofuel quality label. The label is given to the member companies and assures that two very basic conditions are fulfilled:

- that the fuel holds properties in accordance with the stated declaration
- that the fuel is produced, imported and sold within / outside the realm of the law according to

The label entails no certification, the validity is based on the social responsibility in the community of the members.

The Danish Biofuel Association is also the Danish ENplus licenser.

Nordic Ecolabelling provides a "Swan Label" for wood pellets that certifies the environmental performance of the pellets. Currently no manufacturers operate under a licence of Nordic Ecolabelling. The labeling scheme is described in detail in a case study in work package 5 of the SolidStandards project. The study can be seen here.

[3] http://www.teknologisk.dk/ydelser/analyse-som-del-af-kvalitetssikringsordning/28647

4. Standardisation and certification needs

As mentioned above, feedback from the Danish industry was collected from the two trainings on wood pellet standards, quality assurance and sustainability. 37 respondents have used the feed back form that is concentrated on pellet issues.

4.1. Feedback collection about standards for transport/storage

The feed back form comprises a section on standards for transportation and storage of fuels.

Quality issues during transport and logistics are mainly relevant for pellets. 18 respondents think that quality issues in pellet transport and logistics are sufficiently addressed in EN 15234, while one respondent does not find issues on fuel transportation in EN 15234.

Only three respondents are aware of the Austrian standard ÖNORM M 7136 on pellet transport and storage. All three think that this kind of standard is also needed in Denmark or at EU level.

Of the 37 respondents, 16 are of certification systems (e.g., offered by German DINCERTCO or EN plus) for pellet logistics and transport companies. 15 of these think that this kind of certification would also be helpful in Denmark or at EU level. One positive respondent comments that Demark needs a certification body for wood pellets.

Three respondents are aware of the Austrian standard ÖNORM M 7137 on pellet storage silos and storage rooms for small end-users and all three think that this kind of standard is also needed in Denmark or at EU level. Also one of the respondents that is not aware of ÖNORM M 7137 thinks standard is missing in Denmark.

Four respondents are aware of certification systems (e.g. offered by German DINCERTCO) for pellet storage rooms and silos for small end-users and all four think that this kind of certification would also be helpful in Denmark or at EU level.

14 respondents are in favour of standards on health and security aspects for pellet storage at the end-users. The topics for those standards as well as the amount of participants that mentioned it are:

- Dust explosion: 13
- Off-gassing: 9
- Self-ignition: 9
- Fungi spores: 8
- Other: 3

A few respondents elaborate on the places of risk - these cover transport and storage situations and dust formation in general.

The respondents were asked to indicate for which solid biofuels such standards would be necessary:

- Wood pellets: 35
- Wood briquettes: 17
- Wood chips: 21
- Firewood: 14
- Non-woody pellets: 16
- Straw: 3

4.2. Feedback collection per type of biomass

The feedback forms comprised a part with questions focused on wood pellet standards. The following is the result from this part.

Respondents were asked if - provided their company produces industrial pellets - they think that the classification system in EN 14961-1 is useful for the description of the quality of the pellets. Eight respondents are positive, one is negative and one indicates missing knowledge of the system.

On the question if fuel specifications according to EN 14961-2 match the needs of the market, 13 respondents are positive, 6 are negative, some of those stating:

- 0.2 ash (edit: existing threshold too high)
- the ash is too high
- not high enough standard for first class wood pellets

12 respondents agree on the requirements (threshold values) defined in EN 14961-2, while 6 are negative or have comments and one indicates missing knowledge. The comments focus on ash content:

- of ash
- they are compromises, e.g. A0.7 for class A1
- A1 = 0.7% ash

Please also see the point/question above.

On the question if three quality classes for wood pellets are enough, too many or too few, 18 respondents indicate that three classes are enough while one indicates it is too many and two say it is too few.

As described above, Denmark has only few pellet manufacturers and thus only few of the participants in the trainings represented manufacturers. On the question if a quality standard or a quality certification scheme is used in the production and which only few positive indications appear:

- EN 14961-2: 4
- ÖNorm M 7135: 0
- DIN plus: 4
- EN plus: 0
- Other scheme/set of requirements, namely: 0

The respondents have indicated the importance of the quality standard or a quality certification scheme, by giving a rating between 1 (not important) and 5 (very important):

- EN 14961-2
  - Very important (5) - 9 indications
  - Quite important (4) - 1 indication
  - Medium (3) - 2 indications
- ÖNorm M 7135
  - Very important (5) - 2 indications
  - Medium (3) - 2 indications
  - Not so important (2) - 1 indication
- DIN plus
  - Very important (5) - 4 indications
  - Quite important (4) - 2 indications
  - Medium (3) - 4 indications
- EN plus
  - Very important (5) - 5 indications
  - Quite important (4) - 2 indications
  - Medium (3) - 2 indications

As to ideas for ameliorations for the EN 14961-2, three respondents give the following comments:

- Yes, then we can deliver on the same conditions
- Broader selection behind and melting point
- Water % too weak

The respondents were asked for indication if an integrated quality assurance system for production, trade and delivery of pellets (as defined in EN 15234-2) is necessary and useful. 20 respondents are positive, while one is negative.

Also many respondents (12) were positive towards that fuel quality assurance according to EN 15234-2 is realizable, one indicating that legislation is needed. Four respondents did not think so, stating:

- Missing requirements/legislation
- Both yes and no - it will be very difficult
- Too much import from Russia and Balticum where this system cannot work

The respondents have only limited ideas for ameliorations for the EN 15234-2:

- A1 is not a good enough standard for first class wood pellets (please see 4.4):
- Moisture % has to be stated

4.3. Feedback collection about quality certification

There has so far been no feedback about quality certification from Danish market actors.

4.4. Other standardisation and certification needs

Regarding the need for solid biofuel subjects to be standardised, 8 respondents reply the following:

- The whole market for biofuel
- Request for declaration of contents on bags/in bulk
- Request for minimum standards (like fuel oil)
- Wood
- Wood briquettes (2)
- Firewood
- Ash melting point - possibly included in existing pellet standard (2)
- Ash content is lowered to 0.5%
- LCA - to be defined and included (edit: for sustainability calculation)
- Sampling/sample preparation
- Amounts per analysis parameter
- Reporting

The respondents were asked for comments or suggestions about the solid biofuels standards. Only few respondents have supplied comments or suggestions for the standards and only two have actually taken time to write them down:

- A need for uniform description of energy content in different kinds of wood
- Certification of automatic stoker shall be reintroduced
- Which standard has the closest resemblance with DIN Plus?
- A1 is not a good enough standard for first class wood pellets (edit: ENplus, the thresholds should be):
    - Ash content ≤ 0.5
    - Melting point >1400°C
    - Mechanical durability ≥ 97.5
    - Moisture content max. 9%

5. Results of discussion of feedback collection with national mirror committee

On the 10th of October 2013, the SolidStandards project and the feedback were discussed at the annual Danish mirror committee (Standardisation Committee 358) meeting at the Danish Standards. Present were representatives from Daka Denmark A/S, DONG Energy A/S, Energy and Oil Forum, FORCE Technology and Vattenfall A/S as well as the secretary from Danish Standards.

The project and the draft of this position paper were presented to the committee by Mrs. Susanne Westborg, FORCE Technology.

Regarding new areas for standardization, the committee pointed out the following areas:

- Fuel hygroscopicity, more precisely, the hygroscopic tendencies. Probably particularly relevant in connection with torrefied biomass
- Grindability, test which tell about the energy consumption of rolling mill / hammer mill and perhaps also something about the resulting powder's particle size distribution
- Dust forming properties, i.e. how much dust a specific biofuel generates when handled
- Explosion conditions, according to the committee members, foreign organisations provide determination of explosion limits, but the results depend on the current laboratory and its equipment / procedure

Regarding the relevance of certification systems the short general message from the committee would be that it is not relevant for utility companies.

In general, Danish Mirror Committee (and the participating companies and their employees) has been actively involved in the birth of the European complex of solid biofuel standards and is continuously involved with the development of the corresponding ISO standards. The Danish contribution has been continuously determined to develop standards that provide representative data and relevant and practically usable thresholds and procedures in daily operation for solid biofuel actors as well as fuel laboratories.

As the CEN standardization work was about to start, Mrs. Helle Junker (then ELSAM Engineering) made sure to translate the standardization methods from the in section 2.2 mentioned Danish "Recommended analysis methods" into English. Many of the now available EN standards for pre-treatment and analysis of solid biofuels are in fact an outcome of these methods.

Annexes

Annex 1 - Feed back form (Danish)

Spørgeskema om standarder for fast biobrændsel

Ved hjælp af det følgende spørgeskema, vi vil bede om at få din mening om de nuværende standarder for faste biobrændsler og om behovet for nye standarder. Skemaet består af fem dele:

- Del 1 (Generelt) indeholder spørgsmål om dine aktiviteter indenfor standardisering
- Del 2 (Standarder) indeholder spørgsmål om den nuværende og fremtidige anvendelse af standarder om faste biobrændsler samt om behovet for nye standarder eller revision af eksisterende
- Del 3 (Standarder om transport og lagring) indeholder specifikke spørgsmål om standarder for transport og lagring af faste biobrændsler, et emne der i øjeblikket kun behandles overordnet i standarderne
- Part 4 (Spørgsmål om hver type biobrændsel) indeholder specifikke spørgsmål i forbindelse med seks typer af biobrændsel, nemlig træpiller, træbriketter, træflis, brænde, ikke-træagtige pellets og halm
- Del 5 (Spørgsmål om kvaliteten af kurset) indeholder spørgsmål til evaluering af kurset [kun relevant for deltagerne i SolidStandards-kurser].

Spørgsmålene i del 1 til del 3 kan besvares af alle respondenter, spørgsmål i del 4 besvares kun, hvis dine aktiviteter omfatter de nævnte typer biobrændsel. Del 5 gælder kun for deltagere i SolidStandards-kurser, idet spørgeskemaet også er en del af uddannelsen.

Det vurderes at tage 5 til 15 minutter at udfylde dette spørgeskema, afhængigt af hvor stort et antal spørgsmål, der vedrører dine aktiviteter.

Resultaterne vil blive brugt af nationale og internationale standardiseringsorganisationer til at revidere eksisterende standarder eller udvikle nye standarder. Resultaterne vil blive behandlet anonymt.

Del 1: Generel del

1.1 Hvilken gruppe(r) af interessenter tilhører din organisation?

☐ Producent af faste biobrændsler
☐ Forhandler og/eller leverandør af faste biobrændsler
☐ Forbruger af faste biobrændsler: stor skala (> 1 MW)
☐ Forbruger af faste biobrændsler: små eller mellem skala (< 1 MW)
☐ Forbrugerforening
☐ Brancheorganisation
☐ Producent af forbrændings-, forgasnings eller brændselsfabrikeringsudstyr
☐ Certificering, inspektion eller prøvningsorganisation
☐ Laboratorium / Forskningsorganisation
☐ Andre, venligst specificer: .....

1.2 I hvilket land har dit firma/organisation hovedsæde?

.....

1.3 Er du allerede involveret i CEN standardiseringsprocessen?

☐ Ja, via .....

Hvis ja, fortsæt venligst til spørgsmål 1.5

☐ Nej

1.4 Kunne du tænke dig, at blive involveret i CEN standardiseringsprocessen?

☐ Ja, via .....
☐ Nej

1.5 Hvilken type(r) biobrændsel beskæftiger du dig med?

☐ Træpiller
☐ Træflis
☐ Træbriketter
☐ Brænde
☐ Halm (hvede og energiafgrøder)
☐ Brændselspiller af landbrugsafgrøder eller blandet biomasse
☐ Andre biobrændsler, som .....

Del 2: Standarder generelt

2.1 Hvilke (kategorier af) standarder anvender din organisation?
Svar venligst i kolonne A i listen over standarder efter spørgsmål 2.5

2.2 Hvilke (kategorier af) standarder vil du sandsynligvis begynde at anvende i fremtiden?
Svar venligst i kolonne B i listen over standarder efter spørgsmål 2.5

2.3 Hvilke af de nuværende standarder synes du er mest vigtige for biomassemarkedet og hvorfor?

2.4 Synes du, at der er andre områder inden for faste biobrændsler, der har behov for standardisering?

2.5 Har du kommentarer eller forslag vedrørende standarderne indenfor de følgende kategorier?
Svar venligst i kolonne C i listen over standarder efter spørgsmålet og skriv dine forslag nedenfor

Liste over europæiske standarder for faste biobrændsler (maj 2012)

Brug venligst denne liste til at besvare spørgsmålene

2.1 (aktuel brug af standarder; kolonne A)
2.2 (fremtidig brug af standarder; kolonne B)
2.5 (kommentarer og forslag; kolonne C og linjerne nedenfor)

Terminologi		A	B	C
DS/EN 14588:2010	Fast biobrændsler - Terminologi, definitioner og beskrivelser	☐	☐	☐
Brændselsspecifikationer og klasser				
DS/EN 14961-1:2010	Fast biobrændsel - Brændselsspecifikationer og -klasser - Del 1: Generelle krav	☐	☐	☐
DS/EN 14961-2:2011	Fast biobrændsel - Brændselsspecifikationer og -klasser - Del 2: Træpiller til ikke-industriel brug	☐	☐	☐
DS/EN 14961-3:2011	Fast biobrændsel - Brændselsspecifikationer og -klasser - Del 3: Træbriketter til ikke-industriel brug	☐	☐	☐
DS/EN 14961-4:2011	Fast biobrændsel - Brændselsspecifikationer og -klasser - Del 4: Træflis til ikke-industriel brug	☐	☐	☐
DS/EN 14961-5:2011	Fast biobrændsel - Brændselsspecifikationer og -klasser - Del 5: Brænde til ikke-industriel brug	☐	☐	☐
DS/EN 14961-6:2012	Fast biobrændsel - Brændselsspecifikationer og -klasser - Del 6: Ikke træagtige piller til ikke-industriel brug	☐	☐	☐
Kvalitetssikring		A	B	C
DS/EN 15234-1:2011	Fast biobrændsel – Kvalitetssikring af brændsel Del 1: Generelle krav	☐	☐	☐
DS/EN 15234-2:2012	Fast biobrændsel – Kvalitetssikring af brændsel Del 2: Træpiller til ikke-industriel brug	☐	☐	☐
DS/EN 15234-3:2012	Fast biobrændsel – Kvalitetssikring af brændsel Del 3: Træbriketter til ikke-industriel brug	☐	☐	☐
DS/EN 15234-4:2012	Fast biobrændsel – Kvalitetssikring af brændsel Del 4: Træflis til ikke-industriel brug	☐	☐	☐
DS/EN 15234-5:2012	Fast biobrændsel – Kvalitetssikring af brændsel Del 5: Brænde til ikke-industriel brug	☐	☐	☐
DS/EN 15234-6:2012	Fast biobrændsel – Kvalitetssikring af brændsel Del 6: Ikke træagtige piller til ikke-industriel brug	☐	☐	☐
Prøvetagning og prøveforberedelse		A	B	C
DS/EN 14778:2011	Fast biobrændsel – Prøveudtagning	☐	☐	☐
DS/EN 14780:2011	Fast biobrændsel – Prøveforbehandling	☐	☐	☐
Fysiske og mekaniske egenskaber		A	B	C
DS/EN 14774-1:2009	Fast biobrændsel – Bestemmelse af vandindhold – Ovntørringsmetode - Del 1: Totalt vandindhold – Referencemetode	☐	☐	☐
DS/EN 14774-2:2009	Fast biobrændsel – Bestemmelse af vandindhold – Ovntørringsmetode - Del 2: Totalt vandindhold -	☐	☐	☐

	Forenklet metode			
DS/EN 14774-3:2009	Fast biobrændsel – Bestemmelse af vandindhold – Ovntørringsmetode - Del 3: Totalt vandindhold - Vandindhold i analyseprøve	☐	☐	☐
DS/EN 14775:2009	Fast biobrændsel - Bestemmelse af askeindhold	☐	☐	☐
DS/EN 14918:2010	Fast biobrændsel - Bestemmelse af brændværdi	☐	☐	☐
DS/EN 15103:2010	Fast biobrændsel - Bestemmelse af rumvægt	☐	☐	☐
DS/EN 15148:2009	Fast biobrændsel - Bestemmelse af indholdet af flygtige bestanddel	☐	☐	☐
DS/EN 15149-1:2010	Fast biobrændsel - Bestemmelse af partikelstørrelsesfordeling - Del 1: Sigtemetode med oscillerende sigter på 1 mm og derover	☐	☐	☐
DS/EN 15149-2:2010	Fast biobrændsel - Bestemmelse af partikelstørrelsesfordeling - Del 2: Sigtemetode med vibrerende sigter på 3,15 mm og derunder	☐	☐	☐
DS/CEN/TS 15149-3: 2006	Fast biobrændsel - Bestemmelse af partikeldensitet	☐	☐	☐
DS/EN 15150:2011	Fast biobrændsel - Bestemmelse af opløste pillers partikelstørrelsesfordeling	☐	☐	☐
DS/EN 15210-1:2010	Fast biobrændsel - Bestemmelse af pillers længde og diameter	☐	☐	☐
DS/EN 15210-2:2010	Fast biobrændsel - Bestemmelse af pillers og briketters mekaniske holdbarhed - Del 1: Piller	☐	☐	☐
DS/EN 16126:2012	Fast biobrændsel - Bestemmelse af pillers og briketters mekaniske holdbarhed - Del 2: Briketter	☐	☐	☐
DS/EN 16127:2012	Fast biobrændsel – Bestemmelse af vandindhold – Ovntørringsmetode - Del 1: Totalt vandindhold – Referencemetode	☐	☐	☐

Kemiske egenskaber		A	B	C
DS/EN 15104:2011	Fast biobrændsel - Bestemmelse af totalindhold af kulstof, hydrogen og nitrogen - Instrumentelle metoder	☐	☐	☐
DS/EN 15105:2011	Fast biobrændsel - Bestemmelse af indhold af vandopløseligt chlorid, natrium og kalium	☐	☐	☐
DS/EN 15289:2011	Fast biobrændsel - Bestemmelse af totalindhold af svovl og chlor	☐	☐	☐
DS/EN 15290:2011	Fast biobrændsel - Bestemmelse af hovedbestanddele - Al, Ca, Fe, Mg, P, K, Si, Na og Ti	☐	☐	☐
DS/EN 15296:2011	Fast biobrændsel - Omregning af analyseresultater fra en basis til en anden	☐	☐	☐
DS/EN 15297:2011	Fast biobrændsel - Bestemmelse af spormetaller - As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V og Zn	☐	☐	☐

Del 3: Standarder for transport og lagring

Med den stigende anvendelse af faste biobrændsler i Europa, er der de senere år opstået adskillige spørgsmål vedrørende transport og lagring af biobrændsler. Især kvaliteten af lagerbeholdere, brandsikkerhed (selvantænding er sket i flere tilfælde) og sundhedsrisici i forbindelse med små og store lagre samt ved transport (risiko for kvælning ved iltmanglen og CO-dannelse), bliver drøftet i øjeblikket. I nogle tilfælde beder vi også om en uddybning, der kan hjælpe os til at forstå situationen i hele Europa. Hvis du ikke har nogen uddybende svar, må du lade punkterne stå ubesvarede.

3.1 Kvalitetsspørgsmål i forbindelse med transport og logistik er primært relevante for træpiller. Mener du, at der er taget tilstrækkeligt hensyn til kvalitetsspørgsmål i forbindelse med transport og logistik af træpiller i DS/EN 15234?

☐ Ja

☐ Nej, fordi .....

3.2 Kender du den østrigske standard ÖNORM M 7136 der omhandler transport og lagring af træpiller?

☐ Ja *Forsæt til spørgsmål 3.3*

☐ Nej *Forsæt med spørgsmål 3.4*

3.3 Mener du, at denne type standard også er nødvendig i dit land, eller på EU niveau?

☐ Ja

☐ Nej, fordi .....

3.4 Er du bekendt med certificeringssystemer (f.eks. den tyske DINCERTCO eller EN plus) til logistik af træpiller og til transportvirksomheder?

☐ Ja *Forsæt med spørgsmål 3.5*

☐ Nej *Forsæt med spørgsmål 3.6*

3.5 Mener du, at denne type certificering vil være nyttig i dit land, eller på EU-niveau?

☐ Ja

☐ Nej, fordi .....

3.6 Er du bekendt med den østrigske standard ÖNORM M 7137, der omhandler træpillesiloer og lagerrum til små slutbrugere?

☐ Ja *Forsæt med spørgsmål 3.7*

☐ Nej *Forsæt med spørgsmål 3.8*

3.7 Mener du, at der også er behov for denne type standard i dit land, eller på EU niveau?

☐ Ja

☐ Nej, fordi .....

3.8 Er du bekendt med certificeringssystemer (f.eks. den tyske DINCERTCO) til træpillelagerrum og siloer til små slutbrugere?

☐ Ja *Forsæt med spørgsmål 3.9*

☐ Nej *Forsæt med spørgsmål 3.10*

3.9 Mener du, at denne type certificering vil være nyttig i dit land, eller på EU niveau?

☐ Ja

☐ Nej, fordi .....

3.10 Mener du, at der bør være standarder for sundheds- og sikkerhedsmæssige aspekter for træpillelagerrum hos slutbrugere?

☐ Ja, for: Steder hvor risikoen optræder:

- ☐ Støveksplosion .....
- ☐ Afgasning .....
- ☐ Selvantændelse .....
- ☐ Svampesporer .....
- ☐ Andre .....

☐ Nej, fordi .....

3.11 For hvilke biobrændsler er sådanne initiativer nødvendige?

☐ Træflis

☐ Træbriketter

☐ Brænde

☐ Brændselspiller af landbrugsafgrøder eller blandet biomasse

☐ Andre .....

Del 4: Specifikke spørgsmål vedrørende træpiller

Denne del af spørgeskemaet indeholder specifikke spørgsmål om træpillestandarderne:

- *DS/EN 14961-1, Brændselsspecifikationer og -klasser - Del 1: Generelle krav*
- *DS/EN 14961-2, Brændselsspecifikationer og -klasser - Del 2: Træpiller til ikke industriel brug*
- *DS/EN 15234-2, Kvalitetssikring af brændsel - Del 2: Træpiller til ikke-industriel brug*

Hvis du ønsker at give tilbagemeldinger på standarderne for andre faste biobrændsler, beder vi dig gå ind på http://www.solidstandards.eu/feedback/2-uncategorised/107-feedbackdanish.html og besvare skemaet online. På forhånd tak!

4.1 Hvis din virksomhed producerer træpiller til industriel brug, mener du da, at klassifikationssystemet i DS/EN 14961-1 er nyttig til at beskrive kvaliteten af træpillerne?

☐ Ja

☐ Nej, fordi .....

4.2 Mener du, at brændselsspecifikationerne i henhold til DS/EN 14961-2 tilsvarer markedets behov?

☐ Ja

☐ Nej, fordi .....

4.3 Er du enig med kravene (tærskelværdier), som er defineret i DS/EN 14961-2?

☐ Ja

☐ Nej, fordi .....

4.4 Mener du, at tre kvalitetsklasser for træpiller er tilstrækkeligt, for mange eller for få?

☐ Nok

☐ For mange

☐ For få

4.5 Producerer du allerede træpiller efter en kvalitetsstandard eller et kvalitetscertificeringssystem?

☐ DS/EN 14961-2

☐ ÖNorm M 7135

☐ DIN plus

☐ EN plus

☐ Andet system/set af krav .....

4.6 Angiv vigtigheden af kvalitetsstandarderne eller kvalitetscertificeringssystemerne, ved at give en bedømmelse mellem 1 (ikke vigtigt) og 5 (meget vigtigt)?

DS/EN 14961-2	☐	1	☐	2	☐	3	☐	4	☐ 5
ÖNorm M 7135	☐	1	☐	2	☐	3	☐	4	☐ 5
DIN plus	☐	1	☐	2	☐	3	☐	4	☐ 5
EN plus	☐	1	☐	2	☐	3	☐	4	☐ 5

4.7 Har du nogen ideer til forbedring af DS/EN 14961-2?

.....

.....

4.8 Mener du, at et integreret kvalitetssikringssystem til produktion, handel og levering af træpiller (som defineret i DS/EN 15234-2) er nødvendigt og nyttigt?

☐ Ja, fordi .....

☐ Nej, fordi .....

4.9 Mener du, at kvalitetssikringen af brændsler i henhold til DS/EN 15234-2 kan realiseres?

☐ Ja

☐ Nej, fordi .....

4.10 Har du nogen ideer til forbedring af DS/EN 15234-2?

.....

.....

Del 5: Spørgsmål om kursets kvalitet

5.1 Hvad har du lært under kurset?

☐ Jeg kender nu til eksistensen af langt flere standarder for fast biomasse end før

☐ Jeg kender nu til eksistensen af enkelte flere standarder for fast biomasse end før

☐ Jeg kendte til eksistensen af alle de berørte standarder, men har lært mere om indholdet af dem

☐ Jeg har lært virkelig meget om indholdet af standarderne

☐ Jeg har lært meget om indholdet af standarderne

☐ Jeg har lært lidt om indholdet af standarderne

5.2 Venligst evaluér nedenstående emner på en skala fra 1 til 5, hvor 5 er formidabelt og 1 er ringe

Indholdet af kurset som helhed										
Valg af emner	☐	1	☐	2	☐	3	☐	4	☐	5
Rækkefølge af emner	☐	1	☐	2	☐	3	☐	4	☐	5
Kvalitet af materialet	☐	1	☐	2	☐	3	☐	4	☐	5
Strukturen af præsentationerne	☐	1	☐	2	☐	3	☐	4	☐	5
Generelt										
Præsentationer	☐	1	☐	2	☐	3	☐	4	☐	5
Organisering	☐	1	☐	2	☐	3	☐	4	☐	5
Parathed til at hjælpe	☐	1	☐	2	☐	3	☐	4	☐	5
Kursussted	☐	1	☐	2	☐	3	☐	4	☐	5
Forplejning	☐	1	☐	2	☐	3	☐	4	☐	5
Har kurset levet op til dine forventninger?	☐	1	☐	2	☐	3	☐	4	☐	5

5.3 Uddyb venligst svarene i 5.2 - især hvis scoren er 1 eller 2

5.4 Hvordan fik du viden om kurset?