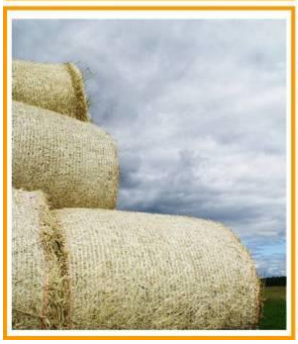





SolidStandards

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



D6.1c
National Industry Position Paper
Germany

Co-funded by the Intelligent Energy Europe Programme of the European Union

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.

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About this document

This document is part of **Deliverable 6.1** of the SolidStandards project. It is the National position paper of Germany. This document was prepared in **June 2013** by:

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Intelligent Energy Europe

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Foreword

CEN, the European Committee for Standardisation, represented in this 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 WP 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 Germany and includes the following:

1. Description of national biofuel markets based on **available data**
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

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

DBFZ discussed the outcome and the concept version of the national industry paper with members of the German mirror committee “Solid Biofuels”. Additional feedback and input was integrated into this final version.

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 national solid biofuels market

1.1. General description of the market in Germany

In the last year there was a noticeable rise in heat supply from all renewables in heat consumption from approx.135 TWh in 2011 to more than 144 TWh in 2012. Nevertheless, the share of 10.4 percent renewable energy sources in Germany's heat consumption remained at the level of 2011.

Biomass remained the dominant source of renewable heat with a share of around 91 percent and in total of around 131 TWh biomass supplied nearly seven percent more heat than in 2011. This is attributable in particular to the greater use of wood in private households in 2012, due to cold weather conditions. The following graph shows the mix and share of all renewables for heat supply[1].

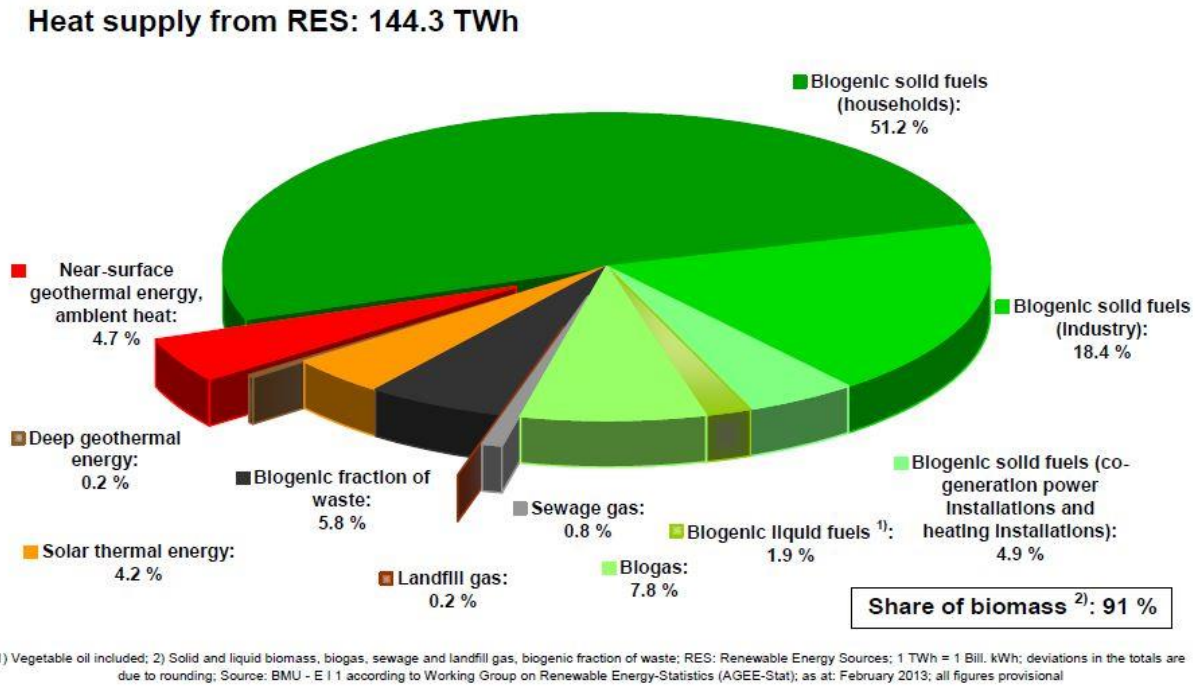

Figure 1: Mix of Heat supply from RES in 2012 (AGEE Statt 2013)

Especially the pellet market has been a market with a fast development. Main reasons are the legal framework promoting the use of pellets and biomass in the residential sector. Increasing oil and gas prices gave stimulation for house owners to install biomass heating systems. Other drivers are the market incentive programme (MAP) and the Renewable Energies Heat Act (EEWärmeG). A further increase is expected for the future. In particular, the market for pellet boilers and stoves for small- and medium-scale applications has experienced a rapid increase of about 280,000. Thus, since 2000 one of the largest wood pellet markets worldwide could be established[2]. Germany has 41 pellet-producing companies active at 59 different sites. The company “German Pellets” has an outstanding position with a production of approx. 800.000 tons pellets per year which is more than one third of the whole German pellet production of about 2.2 million tons in 2012. 1.7 million tons are used and the

[1] AGEE-Stat - Renewable Energy Sources 2012 - Data from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) on trends in renewable energy in Germany in 2012, March 2013
[2] Global Wood Pellet Industry – Market and Trade Study, IEA Bioenergy Task 40, 2011

rest is exported to the neighbour countries mainly to Austria, Italy and Denmark[3]. Approx. 90% of the raw materials for pellets are saw-mill residues.

The market for wood chips is strongly regionally influenced so the number of wood chips producers and traders is not known. In a general perspective wood chips have a very low importance for the heat supply of private households. Not even 1% of the wood fuel used in private households account for woodchips. With a total consumption of around 34 million cubic meters of timber only approx. 300,000 solid cubic meters (750,000 loose cubic meters) of wood in the form of wood chips are used in private households[4].

In larger wood chip heating systems and wood chip heating plants up to 1 MW thermal input, as they are typical for farms, in municipal and the industrial sector, about 10 million loose cubic meters are used. In heating biomass power plants larger than 1 MW approx. 40 million loose cubic meters of wood chips or shredded material are used. While in private heating systems and heating plants smaller than 1 MW the use of forest wood chips dominates, in larger plants used wood (waste wood) and industrial wood residues are predominant[4].

Straw, miscanthus and other agroplants for fuels are of minor importance in the German market. Their market establishment is further hindered by increased licensing requirements for use in the mass market of small furnaces (below 100 kW installed furnace thermal capacity)[5].

Type of organization active on market	Estimate number of actors active on market	Comments
Solid biofuel producers (pellets)	*41*	Based on own database
Solid biofuel trader (pellets)	Exact number is unclear > 600[6]	Other biomasses are mainly used regional. The number of biomass traders is not known.
Solid biofuel users: small-medium sized (< 1 MW)	approx. 193,000 pelletboiler[5] approx. 85,000 pelletoven[5]	The number of furnaces for solid biofuels under 1 MW is not known.
Solid biofuel users: large scale (> 1 MW)	*> 540* [7]	
Industrial association and Institutions	>10	Most relevant are DEPV, DEPI, BuVBB, BBE, DBV, BAV, AGDV, VDMA,CARMEN, VEH
Combustion, gasification or fuel production equipment manufacturers	Boiler and oven: > 50 Materials handling equipment: >12 Pelletizing technology: 7 Supplying industry: >25	The exact number is unclear. The estimation is orientated at the number of listed companies by FNR, Pelletsmagazin and own database.
Certification, inspection or testing bodies	Certifications are ENplus, DINplus, DINgeprüft, Blauer Engel UZ 153.	DEKRA GmbH, Eurofins and Frauenhofer IBP are well known testing institutes in Germany.
Research organization for Bioenergy	Research Organisations: >20 Universities: 39 Student programs: 45	

[3] European Pellet Report, IEE PellCert Project, 2012
[4] http://bioenergie.fnr.de/heizen-mit-holz/hackschnitzel/#c3252 [last hit: 19.06.2013]
[5] Lenz, V.; Kaltschmitt, M.; Janczik, S.: Erneuerbare Energien – Erkenntnisstand 2012; BWK 65 (2013), S. 80 – 93, SPRINGER-VDI-VERLAG, 2013
[6] http://www.bioenergie.de/index.php?option=com_content&view=article&id=290&Itemid=6 [last hit 20.6.2013]
[7] Weimar, H.; Döring, P.; Mantau, U.: Standorte der Holzwirtschaft – Holzrohstoffmonitoring. Einsatz von Holz in Biomasse-Großfeuerungsanlagen 2011. Abschlussbericht. Universität Hamburg, Zentrum Holzwirtschaft, Hamburg 2012.

1.2. General figures of the market

Wood pellets[8]	**Overall annual turnover (mill. €/year)**			**production volume (mill. ton/year)**		
	2010	**2011**	**2012**	**2010**	**2011**	**2012**
	393,75	442,70	518,94	1,75	1,9	2,2
Wood briquettes	[9] **average price (€/t dry basis)**			**consumption volume**[10] **(mill. solid cubic meter/year)**		
	2011	**2012**		**2005**	**2007**	**2010**
	Softwood: 229,- Hardwood: 275,- Bark: 408,-	Softwood: 217,- Hardwood: 267,- Bark: 359,-		0,57	0,81	1,43
Wood chips	**average price (€/t dry basis)**			**consumption volume (mill. solid cubic meter/year)**		
	2010[11]	**2011**[11]	**2012**[11]	**2005**		**2010**
	109,- Variation from 80 to 145	107,- Variation from 80 to 134	105,- Variation from 81 to 132	0,23[12]		0,17[13]
Firewood	**Overall consumption volume (mill. solid cubic meter/year)**					
	2005	**2007**	**2010**			
	16,65[14]	19,70[13]	24,57[143]			

Energy production per type	**consumption volume (mill. cubic solid meter/year)**	
	2005	**2011**
Total	19,05	27,30
Small-medium sized (< 1 MW)	3,55 [15]	7,10 [10]
Large-scale (> 1 MW)	15,50 [14]	20,20 [10]

[8] http://www.depv.de/startseite/newsarchiv/ [last hit: 16.06.2013]
[9] http://www.kaminholz-wissen.de/dokumente/brennholz-kaminholz-preise-2012-2013.pdf [last hit: 15.06.2013]
[10] SAAL, U., DÖRING P. (2013): Biomasse- Beschaffung und Verfügbarkeit von Energieholz. Ist unser Holz knapp? p. 13
[11] Euwid – Neue Energien, Market report, EUWID Europäischer Wirtschaftsdienst GmbH, Gernsbach
[12] MANTAU U., SÖRGEL C., (2006): Energieholzverwendung in privaten Haushalten. Marktvolumen und verwendetet Holzsortimente. Abschlußbericht. p. 9
[13] MANTAU U., (2013): Energieholzverwendung in privaten Haushalten 2010. Marktvolumen und verwendete Holzsortimente. p. 9
[14] MANTAU U., SÖRGEL C., (2006): Energieholzverwendung in privaten Haushalten. Marktvolumen und verwendetet Holzsortimente. p. 9
[15] MANTAU U., (2007): Energetische und stoffliche Holzverbrauchsentwicklung in Deutschland. p. 7

2. Standardisation activities

2.1. National standardisation activities

The German mirror committee NA 062-05-82 AA “Feste Biobrennstoffe” counts 13 members. The composition of the members working background is specified in the table below.

Type of organization	Number of organisations represented in the committee
End-users of solid biofuels	2
Producers of solid biofuels	1
Scientific institutes	4
Socio-political interest groups	2
Public authorities	3
Testing institutes	1

The committee is working on and commenting standards developed by CEN/TC 335 and ISO/TC 238. German experts are involved in the development of standards on:

- Terminology (ISO 16559)
- Specifications and classes (ISO 17225)
- Quality assurance
- Sampling
- Analysis of Physical properties
- Analysis of chemical properties

The committee meets once per year. Urgent questions are discussed on the phone or via email when necessary.

2.2. National standards

The German Engineering Association (VDI) developed a guideline “Emission control - storage of wood pellets at the end-user - requirements for the storage room concerning safety aspects” was published in September 2012 as a draft version. Within this guideline, requirements for specification and design of pellet storage up to a capacity of about 100 tons are given. These requirements serve to prevent and mitigate potential issues or risks in pellet storage. They are based on the exclusive use of pellets according to EN 14961-2. The directive is aimed at all people who build, operate or monitor a pellet store.

Martin Behr from the German Pellet association DEPV was deeply involved in the development of this guideline. Martin Behr is member of “CEN/TC 335 Solid Biofuels” and “ISO/TC 238 Solid Biofuels” and as well member of the “German mirror committee NA 062-05-82 AA Feste Biobrennstoffe”.

On the last committee meeting in January 2013 a company initiative for hydrothermal carbonization of biomass was presented. The committee is interested but a broader basis of companies has to be involved in this topic. It was agreed to check if the subject can be included in the same standard as “torrefaction”. In a first step information about possible fuel quality, end-user needs and the production process is needed. Besides that no further subjects are under development at the moment.

2.3. Uptake of European standards

- *Terminology*

According to the questionnaire the market actors hardly use this standard yet but probably a greater number of them apply for it in the future.

- *Specification & classes*

Most important standards developed by CEN/TC 335. These standards are basis for certification schemes (see chapter 3).

- *Quality assurance*

Play mainly a role for certification schemes (see chapter 3). Best implementation is the certification scheme ENplus for wood pellets. In other areas of solid biofuels, the implementation of quality assurance and certifications is more difficult. Reasons for this might be seen in the fragmented industry and the low degree of organization.

- *Sampling and sample preparation*

There is nearly no implementation of the standards on the market because they are not applicable and functional tools for the users are missing.

- *Physical and mechanical properties*

Since biofuel producers mostly use fast measuring methods for internal quality control (e.g. according to EN 15234) the scientific test methods defined in the testing standards, are mostly used by (accredited) biofuel lab. Participants of the workshops organized within the SolidStandards project mentioned the missing of appropriate quick test methods.

- *Chemical properties*

The analysis of chemical properties for solid biofuel is very cost-intensive and complex. They don’t have to be carried out for company internal quality control according to the quality assurance standards. The new testing standards for the chemical properties are not used by biofuel producers, only by biofuel labs, mainly involved into the testing for certification schemes. Currently only a few labs in Germany are accredited for the application of the standards (mainly in the pellet sector). Participants of the SolidStandards workshops asked for the implementation for an own laboratory.

3. Certification activities

At the moment mainly certification schemes for wood pellets are in use. For other solid biofuels, certification schemes are under development or have to be developed.
Besides the certification schemes for solid biofuels, sustainability forest certifications are widely used. Approximately two thirds of the forest area in Germany is certified. The worldwide leading certification system PEFC has approx. 7.4 million ha forests certified in Germany. Forest areas certified to sustainable FSC certification scheme in Germany are approx. 0.63 ha.

3.1. Wood pellets

- *ENplus (by European pellet associations)*

This certification scheme has a wide spread in the pellet industry. It is very close to the requirements from the EN 15234-2 and is developed for all three classes of pellets. Also downstream users of the trade and distribution sector are involved. In May 2013, 23 pellet producing companies, representing 39 pellet production sites, have an ENplus certificate. Besides, 70 traders and wholesalers with 300 distribution points are certified according to ENplus in Germany.

- *DINplus (by DINcertco)*

The certification scheme DINplus is well established in Germany. The product requirements have been changed to class A1 of EN 14961-2. Recently DINcertco offers a product certification “DIN-Geprüft Industriepellets” to industry pellets according to class B. The system is not oriented on EN 15234.

Besides, the DINcertco database[16] gives information about companies which are certified in the field of logistics “DINgeprüft Fachbetrieb Pelletlogistik” for six logistic companies and “DINgeprüft Pelletlagerbehälter” for one company which produces storage systems for (wood) pellets.

- *Blauer Engel UZ 153*

The certification system is for technical dryed wood chips and pellets. The product quality requirements are orientated at the EN 14961-1. The raw material needs to be certified either to FSC, PEFC or Naturland and the CO_2-emissions for raw material transport, supply and processing are taken into account. One of the production requirements is an efficient drying method by using heat from renewable energy or industrial waste heat. Also the monitoring of dust emissions is carried out at the production. There are strict criteria for product quality to ensure efficient and clean combustion of wood fuels. One pellet producer is certified[17] according to the scheme.

3.2. Wood briquettes

- *ENplus for wood briquettes*

Based on the European standard EN 14961-1 ENplus was adopted to the briquette market in 2012 by the German Pellet Institute (DEPI). The certification covers the entire supply chain and its users are bound to fulfill an internal quality management system. The system is open to producers and traders of briquettes. It will probably start in 2014.

[16] http://www.dincertco.de
[17] http://www.blauer-engel.de/de/produkte_marken/vergabegrundlage.php?id=211

3.3. Wood chips

- *Blauer Engel UZ 153*

See above for wood pellets.

- *HolzWärmePlus*

The national bioenergy association “Bundesverband Bioenergie” (BBE) aims to establish a network of various actors in the wood chip industry. The common goal is to develop a competitive solution for a bioenergy heat supply in the (sub) urban space. The networks’ leading theme is efficiency within the wood chips heating process. Therefore following working tasks are in focus:

- a new industry standard for wood chips as the most energy-efficient wood fuel should be established
- R & D – projects should be initiated to optimize and develop a common technology-standard in the field of heating with wood chips
- the acceptance of wood chips in heating applications should be increased by a unified network presentation.

- *DEPV imitative*

The German Energy Wood and Pellet Association (DEPV) is planning to develop a system for wood chips comparable to the ENplus but hasn’t started the work yet.

4. Standardisation and certification needs

The participants of the training sessions of the SolidStandard project in Germany were asked to fill in a questionnaire to give a feedback about what they were already aware of and what in their perspective is missing or wrong in the presented standards. The number of participants of all training sessions in the time from May 2012 till June 2013 was about 86 but not all of them filled in the questionnaire or sometimes only partly. Therefore, it has to be kept in mind that the number of answers varies from question to question. Besides also the bespoken topics and main issues of the discussion are integrated in the feedback collection.

4.1. Feedback collection about standards for transport/storage

27 out of 34 participants think that quality issues during transport and logistics are mainly relevant for pellets and that the quality issues in transport and logistics are sufficiently addressed in EN 15234.

15 out 38 were aware of the Austrian standard ÖNORM 7136 and 10 out of 14 think that this kind of standard is needed. In contrast 25 out of 39 are aware of certification standards DINplus by DINcertco or ENplus and 14 out of 23 think that certification schemes like these are helpful in Germany or at EU level

In aspects of pellet storage silos and storage rooms for small end-user groups only 13 out of 39 are aware of the existing standard in ÖNORM 7137 respectively 9 out of 35 for the DINcertco certification system but the majority of the participants think that this kind of standards is needed on national or EU level.

28 out of 36 participants think that there should be standards on health and security aspects for end-user pellet storages. The assessment of different risks is mentioned with:

Risk	Answers
Dust explosion:	**28**
Off-gassing	**27**
Self-ignition	**18**
Fungi spores	**16**
Other	**7**
No	**4**

4.2. Feedback collection per type of biomass

In Germany 5 trainings were held - 2 trainings for wood pellets, 2 trainings for wood chips and 1 for non-woody pellets. All 5 trainings together had 86 participants and most of them deal with several biomass fuels. The answers, given in the feedback questionnaire, show that most people are involved in the field of wood pellets and wood chips.

Biofuel	Answers
Wood pellets	**42**
Wood briquettes	**27**
Wood chips	**39**
Firewood	**19**
Non-woody pellets (agro pellets, mixed pellets)	**19**
Straw (wheat and energy crops)	**18**
Other biomass fuels	**7**

4.2.1. Wood pellets

- *Classification system*

11 of 11 answers state that the classification system in EN 14961-1 is useful. 14 out of 18 think that fuel specifications to EN 14961-2 match the market needs and also 14 out of 17 agree with the threshold values. 17 participants think that 3 quality classes for wood chips are enough, 3 indicate that these classes are too few.

In the international standard ISO 17225-2 not only 3 quality classes for the domestic use but also 3 classes for industrial use will be defined. This offers a wider range of quality requirements to the end-user.

In discussions with stakeholders calling the hotline they criticised that the ash melting behaviour is an informative parameter that does not have to be assessed. In the last years

some problems occurred with ash melted in the vessel and thereby disabled a good combustion. But ash melting behaviour cannot be defined as a normative parameter at this point of time since no appropriate test method is available for this parameter.

- *Quality assurance and certification*

About half of the participants (10 out of 19) indicate a very high importance of a quality standard or quality certification scheme in general. The participants in Germany evaluate the established quality certification scheme with the highest rating for ENplus (12 out of 21), DINplus (3 out of 20) and ÖNorm M 7135 (2 out of 17). An integrated quality assurance system for production, trade and delivery of pellets is seen as necessary and useful by 21 out of 23 and also 19 out of 20 think that it is realizable.

The practicability of the standard is proofed by the fact that the requirements are part of the certification scheme which is widely used by stakeholders of the sector.

During the training sessions participants mentioned that the design of the end-user storage should be more precise and possibly standardised. This end point in the long supply chain cannot be influenced by the producer/trader but is influencing the pellet quality. In cases of complaints it is often not traceable who is responsible. Therefore, a precise regulation at the point of delivery to the buyer would be desirable, perhaps even with retained samples.

- *Sampling and sample preparation*

EN 14778 - Solid Biofuel Sampling was known and used by 10 participants but 17 are probably going to apply for this standard in the future. It was once commented generally that it should be more applicable for the user.

The fact that samples can be taken from the flow of material during operation makes the representative sampling of pellets much easier than that of wood chips on a pile.

EN 14780 – Sample Preparation is used by 5 participants. 11 indicated to use the standard in the future.

- *Physical, mechanical and chemical properties*

These standards are in use and several participants indicate to use these standards in the future. It was mentioned that the problem of “smell” should be included in the standards and possible solutions to avoid it at consumer side would be appreciated.

4.2.2. Wood chips

- *Classification system*

The EN 14961-4 for wood chips is used by 23 participants and 26 indicate to use them in the future. The EN standards had a strong influence on the development of the upcoming international standards for solid biofuels. In most cases the standard requirements are equal. The questionnaire was focused to get the participants opinion about the upcoming international standards of ISO 17225-1 - General requirements respectively ISO 17225-4 for wood chips.

- *Quality assurance and certification*

14 out of 24 participants don’t agree with the proposed combination in one table with stating only the traded form separately of wood chips and hog fuel in ISO 17225-1.

The properties of wood chips and hog fuel are nearly the same. Hog fuel is mostly produced by shredding used wood contaminated with nails or other metal parts which could damage

the blades of a chipper. The main difference is the particle size of the produced fuel. Hog fuel particle are mostly larger than wood chips. Both fuels can be described by using the size classes defined in ISO 17225-1.

On the proposed combination of the particle size in one table for wood chips for industrial use (acc. ISO 17225-1 respectively EN 14961-1) and for wood chips for non-industrial use (acc. ISO 17225-4 respectively EN 14961-4) in one table 12 out of 24 agree on. But 8 out of 8 agree on the proposed particle size from P16 to P300.

The idea was that the size classes defined in EN 14961-4 (respective ISO 17225-4) should be included in EN 14961-1 (respective ISO 17225-1) as well. This makes sense since the particle size distribution stays the same, no matter if the fuel is used in small (domestic combustion systems or in industrial scale plants.

13 out of 22 think that there should not be a separate particle size requirements for forest chips, stem wood, industrial residues and used wood. Alternative requirements for raw material were not mentioned by participants who agreed on the suggestion.

Further answers to questions regarding the properties of wood chips were less convincing. Questioning if a maximum cross section is needed only 8 out of 21 stated positive for EN 14961-1 and a majority (13) of 21 agrees on the same question for the EN 14961-4. If the net caloric value should be mentioned as a normative reference was answered by 20 participants equally.

- *Quality certification*

12 participants' use the standard EN 15234-4 for wood chips for non-industrial use, 17 are probably going to apply in the future. In discussions during the workshops the participants named sometimes the problem that there are no standardized production processes. The quality of raw materials and the external conditions fluctuate widely, much more than for pellets. Except for the measurement of water content, there are no quick test methods for the objective assessment of quality parameters in the field (for example: size distribution).

- *Sampling and sample preparation*

Participants mentioned especially the sampling from a wood chips pile is difficult because the segregation of the bulk material and the uneven drying behavior in different depth of the pile can lead to falsifications of the material samples. Also appropriate tools for the sampling are still missing because the in practice it is often not possible to take samples from the material stream.

4.2.3. Non-woody pellets

The EN 14961-6 Fuel specifications and classes for non woody pellets is used by 13 participants and 14 are probably going to apply for it in the future. But it has to be kept in mind that no producer of agropellets was at the workshop, only representatives from science or other institutions participated. Agropellets do not play a role on the solid biofuel market in Germany due to increased licensing requirements in regards of emissions.

- *Classification system*

7 out of 8 think that the three raw material classes are not enough. A wider range of possible classes was suggested like grass- and straw-like plants, seeds, rape or biological residues from food production and waste management. Two quality classes are enough stated by 6 out of 7.

The maximum amount of additives in raw material mixtures should be mentioned in the product standards is wished by 6 out of 8. Reasons are the influence of the ash content behaviour, influencing the emission and burning behaviour and it prevents the mixing in of inappropriate material. Also 6 out of 8 are in favour to include a list in the standards which shows what additives are allowed.

- *Quality certification*

The EN 15234-6, Fuel quality assurance - Part 6: Non-woody pellets for non-industrial use

This standard is used by 6 participants and probably going to apply for it in the future by 8. Especially mixed pellets are of interest by 3 participants.

At the moment no certification scheme for non-woody pellets based on the agropellet standards exists. In the workshop new developed approaches (e.g. the label ENplusAgro, formulated within the MixBiopells project) have been presented.

4.3. Further standardisation and certification needs

In the following is listed what was mentioned in the questionnaire and other criticized points within the discussions during the workshops:

- A need for further standardisation is seen at field of hydrothermal carbonization of biomass (HTC).
- Also the development of a standard/guideline for the measurement of ash melting behaviour was once mentioned in the questionnaire.
- A own standard for industry-pellets was preferred by several participants
- The subject of sustainability within the product and certification standards should be implemented and was mentioned more often during discussions.
- In the opinion of several participants there is a need for the development of practice-oriented methods for producers and consumers to measure and to verify product characteristics. In particular there is a need for suitable rapid test methods that are feasible on site or at least without extensive laboratory testing.
- The size-classes for wood chips in EN 14961 were criticized by lots of participants as “not suitable” in practice.

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

The last meeting of the national mirror committee was held at 24th January 2013. At that point of time there were only little results from the workshops. For this reason, it was not possible to discuss the given ideas and results from the workshop. The next meeting of the national mirror committee will be held in January 2014. It is agreed with Hans Hartmann (convenor in the national mirror committee) and Jakob Bosch, (co-convenor) to bring in the themes for a further development of the standards during the next meeting. Comments by the workshop participants were discussed with Jakob Bosch.

Outcome of the discussion was that topics in regards of safety and security in the use of biomass fuels is of high concern in the national mirror committee. While market actors often mention the dust problem, scientific researchers are more concerned about the emission of volatile organic compounds (VOC) and carbon-monoxide. However, till now the work on practicable solutions is going on and changes in existing standards must be based on reliable scientific research which is often done in European projects like for example “MixbioPells” or “SafePellets”. It was referred to the outcome of the “First International

Workshop on Pellet Safety" which was held from 4th to 6th March 2013 in Fügen/Austria within the SafePellets project.

Safety issues are seen as a very important topic regarding storage and transportation of solid biofuels. Since it is already part of national legislations in most of the countries, and these legislations differ a lot, safety issues are not in the scope of the committee. In Germany requirements for transport and storage of wood pellets are already object of the VDI Directive 3464. Furthermore, it has to be stated that a comprehensive quality assurance system according to EN 15234 already helps to detect and to avoid safety problems because it forces the producers of wood fuels to be cautious in their production processes. Also the design of the end-user storage is not defined in a CEN standard. A recommendation paper of the German pellet association DEPV was published and has already been translated for the Irish market. The revised version of the paper will be provided to all national pellet associations organised in the European Pellet Council. Of course this paper does not have the status of a standard but it has been developed in collaboration with many actors of the sector. A need for defining an own standard for "biofuel storage" is not seen at the moment.

About new standards for HTC material was already discussed in the last meeting and it was agreed that more interests from market side is needed (see 2.2).

Currently non-woody pellets made from straw play a role in Europe, but not yet in Germany. Classes A and B defined in the standard are meant for the standardisation of pellets made from all other raw materials. The classification system in EN 14961-1 offers another possibility to describe the properties of a fuel. In case other raw materials become more important in the future, special requirements for the produced pellets will be included in the revised version of the standard.

The own standard for industry-pellets is not in focus at the moment. The "Initiative Wood Pellets Buyers" (IWPB) already has worked out at a catalogue of requirements for industry pellets and will include these as own classes into the upcoming ISO standard 17225 for pellets. The IWPB is an interest group launched by GDF SUEZ and unites utility firms that fire large quantities of wood pellets. The goal is to enable the trading of industrial wood pellets among the partnering companies.

New standards for "sustainability" and maybe the further integration into the certification schemes are under development. At current state European CEN/TC 383 has developed the standard "EN 16214 - Sustainability criteria for the production of biofuels and bioliquids for energy" and it was published end of 2012. Till now it only deals with liquid and gaseous biofuels but it is under discussion that it will be extended also for solid biofuels in the future.

On international ISO level ISO/PC 248 the standard for criteria of sustainability in the field of bioenergy is still under development. It aims to provide criteria along the supply chain and the energetic use of biomass which also includes solid biofuels.