BUSINESS PLAN

CEN/TC 335
SOLID BIOFUELS

EXECUTIVE SUMMARY

Business Environment

The majority of biomass produced, traded and consumed around the globe is for food purposes. However, a significant portion, primarily forest based material, is used for industrial production of construction material (lumber and board) and for production of consumables such as pulp, paper and a host of allied products. Although mankind has been using biomass for heating and cooking purposes for a very long time and still today an estimated 2.5 billion people do, biomass has not been traded as a fuel on a large industrial scale until the middle of the last century for production of process heat and electrical power or a combination of the two. As this trade has increased so has the demand for a reliable and agreed upon quality standards. The demand is predicated on a requirement for a common way of evaluation of the traded commodity for compensation purposes as well as a demand for more precise product characteristics for technical reasons.

The net effect by the CO_2 from burning biomass is considered neutral since the same gas is recirculated within an estimated 50 – 200 years from the release through the photosynthesis process back to biomass. The permanency of the portion of the CO_2 in the atmosphere released through combustion of fossil fuels is the target for the international mitigation effort. The shift to a variety of renewable forms of energy is under way, including replacement of fossil fuel with biomass based fuels, so called biofuels. There is obviously a great despair from one region to the next which clearly direct us in to extensive trading with energy and fuels, particularly solid biofuels which already is the dominating renewable fuel with an enormous potential for expansion without encroaching on the uses of biomass for food or construction material. Product Standards, Quality Assurance Standards and Safety Standards are essential tools for achieving an efficient distribution of energy as the basis for much of our aspiration for a better living standard around the globe.

Benefits

The purpose for making common European standards is:

- Simplify communication between fuel suppliers and customers.
- Assure that heating equipment and solid biofuels are designed for each other.
- Assure that the delivered fuel has the quality which is specified in the technical requirements.
- Provide the market with tools to determine the economic value of delivered fuels
- Produce a common way to control and regulate safety demands.

Priorities

To develop standards in the following areas within solid biofuels:

- Terminology
- Fuel specifications and classes
- Quality assurance system
- Sampling
- Sample reduction
- Physical and mechanical test methods
- Safety for handeling and storage of biofuels
- Chemical test methods

CEN TC335 follows goals within standardization of minimizing double work, most of the development and review of standards are allocated to ISO TC238 "Solid Biofuels" through Vienna agreement between CEN and ISO.

1 BUSINESS ENVIRONMENT OF THE CEN/TC

1.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal, societal and/or international dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this CEN/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards.

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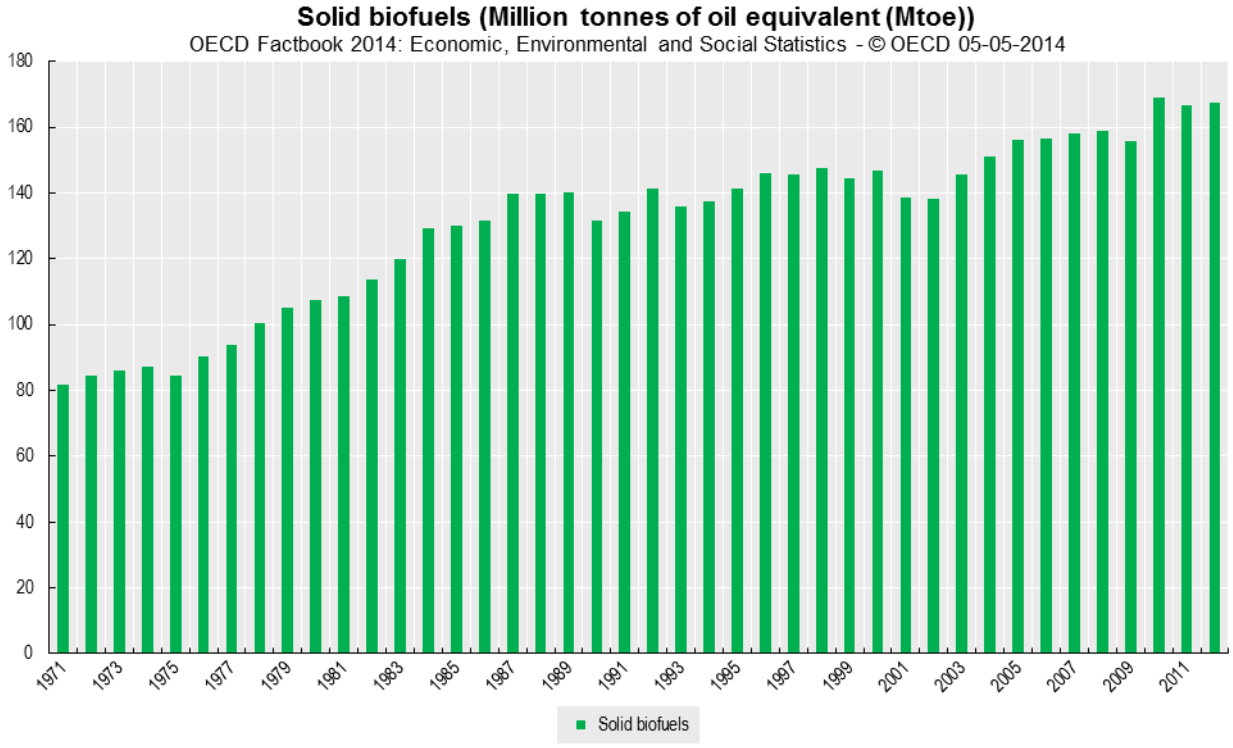
The following 5 distinctly different markets are established for solid biofuels:

- Wood pellets for supply to large scale production of heat and/or electrical power. This trade has developed a critical mass to sustain long range deliveries between loading and discharge ports using deep ocean vessels. The trend for this category is acceptance of gradually higher content of ash and favoring high calorific value. This business area is characterized by very large international business transactions with increasingly high demand for internationally recognized test, classification and safety standards.
- Packaged pellets for the residential market with gradually higher quality demand to mitigate the particulate emissions during combustion. This business area is characterized by a large number of domestic business transactions and has fostered a number of national Standards in addition to test, classification and safety standards.
- Briquettized wood for a combination of residential market and smaller industrial heat producing facilities. This business area is characterized by a large number of a limited number of domestic business transactions with no Product Standard but with limited demand for test, classification and safety Standards for certain parameter such as moisture, calorific value and total ash
- Agro-pellets. This business area is characterized by mainly domestic business transactions with demand for test, classification and safety Standards primarily focused on the ash characteristics, moisture content and calorific value.

- Hogfuel for conversion in stoker, fluidized bed and gasification energy conversion systems within a relatively short distance from the source of the raw material. This business area is characterized by a large number of domestic business transactions with demand of test, classification and safety Standards

1.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the CEN /TC335:
One of the crudest forms of solid biofuel is hogfuel from the forest industry which in most cases includes bark and in many cases a substantial amount of silica as a result of contamination during handling and the relatively high ash content in bark. Hogfuel is seldom traded off-site due to the relatively low market value. Wood pellets made out of sawdust and planer shavings on the other hand are traded to a large extent at long distance and is today the most traded solid biofuel under contract stipulating quality requirements, often with rigorous requirement for testing certain parameters. Figure 1 illustrates the production and consumption globally



Figur 1: Statistics developed and reported by IEA/OECD (see OECD Factbook 2014: Economic, Environmental and Social Statistics - © OECD 05-05-2014, ISBN: 978-926-420-918-3)

Pelletized biofuels have become a very important commodity as well as an integral part of our emerging new energy systems worldwide. A potential need for strategic solid biofuel reserves are being discussed due to the dependence on a predictable supply of fuel for district heating.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

In view of the rapidly increasing international as well as national trade of solid biofuels the need for concise and unambiguous criteria and methods for characterization of the solid biofuels has become important for suppliers as well as buyers and consumers. The criteria are both in name and in measure physico-chemical characteristics. The methods for characterization are both in methodology and in technique applied for determination. After a long history of trading and use solid biofuels appear under a multitude of names as well as a multitude of refinement. The benefits expected from the CEN/TC work is a set of test, classification and safety Standards based on consensus among members applicable to the exchange, trade and use of solid biofuels resulting in elimination of technical barriers.

The test, classification and safety Standards contribute to the process of establishing the environmental or social impact of large scale use of solid biofuels for energy production and related criteria for certification of carbon credit accounting. The Standards also allow comparison of solid biofuels with other solid fuels.

Some of the Standards are directed towards establishing criteria for safe handling and the potential for health risk exposure resulting in a decrease in accidents and incidents currently experienced with solid biofuels due to the lack of documented knowledge and methods for establishing risk exposure in the trade.

Trade of products transported in large volumes benefit from well defined testing methods.
This result in:

- Elimination of biased testing methods and ill defined classifications and definitions.
- Reduction of reclamations.
- Less commercial disputes.
- Improved safety in handling and storing.
- Less negative impact on energy conversion equipment.
- Emissions keept within the targeted limits.

Since the inception of regular large scale transoceanic shipment of pellets in 1997 from Canada to Europe the large buyer in Europe and the sellers have been striving to find a common ground between the use of various standards such as SS, EN, NTA, DIN, ASTM, ASABE, ÖNORM, CEI and ISO as a consolidated common denominator for supply contracts in view of the potentially devastating consequences of misinterpretation of performance criteria in very large commercial contracts. Obviously, substantial time was spent on exploring these standards and to agree on which standard to incorporate in contract and to determine to what extent any of these standards were applicable. In many cases standards designed for testing of fossil fuels had to be used since there were very few standards adapted to solid biomass. The advent of the CEN standard was a milestone in simplification on the way to the ultimate goal of a globally universal ISO Standard for Solid Biofuels adapted directly to biomass. Therefore the CEN standards are transferred and revised by ISO under the Vienna Agreement between CEN and ISO.

Several safety aspects established by scientists such as off-gassing, self-heating and dust explosibility of solid biofuels have been observed under certain circumstances and to some extent included in product Material Safety Data Sheets (MSDS). The Standards developed by the TC are likely going to be cited as normative references within the area of trade with solid biofuels and related health and safety issues during transportation by road, rail and water and storage and become a distinct and effective vehicle for design of MSDS covering solid biofuels.

The set of Standards as selected by the TC members is believed to address the essential aspects encountered but may be amended as the work progresses and new members are contributing with knowledge and experience. With a vigorous research and development under way as indicated in

section 2.1.2, it is expected that new forms of solid biofuels will appear as commercial commodities demanding further work on Standards. However, the TC believes that most of the work on Standards is sufficiently generic to be applicable also to new forms of biomass.

3 PARTICIPATION IN THE CEN/TC

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of the CEN/TC

Standardization of terminology, specifications and classes, quality assurance, sampling and sample preparation and test methods in the field of raw and processed materials originating from arboriculture, agriculture, aquaculture, horticulture and forestry to be used as a source for solid biofuels

Excluded areas:

- Liquid biofuels
- Fossile fuels
- Peat
- Process ashes

If the EC policy on peat changes, the standardisation of peat as a fuel might be considered at European level.

Process ashes are excluded from the scope at present; it is understood that they fall within the scope of work of CEN/TC 292 “Characterization of Waste”.

4.2 Identified strategies to achieve the CEN/TC.s defined objectives.

CEN TC335 follows goals within standardization of minimizing double work, most of the development and review of standards are allocated to ISO TC238 "Solid Biofuels" through Vienna agreement between CEN and ISO. Needs that are specific to the European market will be developed under CEN, othervise CEN TC335 strives to have the standards international. Expected delivirables are EN-ISO standards while the market is international and not limited to Europe.

4.3 Environmental aspects

The CEN guide 4 is written for product standards, and checklist is designed for product life cycle. CEN TC335 does not develop any product standards, only test, classification and safety standards. The materials covered by the standards aims for the energy sector to become more climate neutral, and thereby promote positive development of the environment.

5 Factors affecting completion and implementation of the CEN/TC work program.

- During the development of the standards research and validation might be needed, fundings and technical support has not been secured.

- If research and validation is required this may affect the timeplans for the work items.

- The diversity of the raw material might cause loss of focus of target of the standard.