



Solid biomass specifications for large scale power plants

SolidStandards workshop Berlin

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Introduction

- All major utilities do operate large biomass plants in Europe
- Some of them still perform co-firing with coal
- Others are operated with 100% biomass up to 300 Mwe
- Most of them rely on long term supply contracts
- In case one large power plant is unavailable for technical reasons trading is an absolute necessity
- Different specifications and different national legal rules make this very difficult
- Therefore an agreement should be found between utilities to make trading of wood pellets possible
- Inspection companies are also concerned

Initiative Wood Pellets Buyers (IWPB)

Participants:

- Big 8 utilities in Europe all operating large scale biomass plants



- Inspection companies



- Technical advice and support



- Journalist for public reports on the meetings



Initiative Wood Pellets Buyers (IWPB)

Objective:

facilitate trade between utilities through uniform contracting

- ✓ Similar legal requirements
- ✓ Common specs for industrial pellets
- ✓ Common sustainability principles
- ✓ Respect of the competition rules (e.g. no discussion on prices)
 - content of all discussions communicated to outside world
- It is desirable and possible to make use of the biomass procurement contracts to
 - ✓ incite biomass supplier to conform himself to minimum set of criteria for quality and sustainability of the wood pellets deliveries
 - ✓ allow the supply chain to be improved year after year for larger set of criteria, including quality and sustainability issues
- See http://www.laborelec.com/content/EN/Renewables-and-biomass_p83 for minutes and documents

IWPB – Industrial wood pellets specs

Principles: being acceptable by all 8 utilities and their respective national authorities

- ✓ BE, NL, UK, DE, DK, SE, FI are concerned for end use
- ✓ Three wood pellets specifications:
 - one (top-quality) suited to 100% biomass firing: I1
 - one (medium) suited for large co-firing rate with coal: I2
 - one (low-quality) suited for limited co-firing rate with coal: I3
- ✓ designed on the base of the specs from all 8 utilities
- ✓ No contaminated biomass and limited additives allowed
- ✓ Agreement on the specs by Fuel Procurement representatives
- ✓ Now open for discussion with the suppliers of industrial wood pellets
- ✓ Sampling and analysis standards based on CEN/TC335 are considered with the agreement of the member inspection companies

IWPB – Industrial wood pellets specs

Parameters	Units	Standard	I1 industrial	I2 industrial	I3 industrial	Check performed by
Origin and source	Only accepted	EN 14961-1	1.1 Forest, plantation and other virgin wood, 1.2.1 chemically untreated wood residues	1.1 Forest, plantation and other virgin wood, 1.2.1 chemically untreated wood residues	1.1 Forest, plantation and other virgin wood, 1.2.1 chemically untreated wood residues	insp & lab
Sampling		EN 14778				insp
Quality check						insp
Sample preparation		EN 14780				insp
water damage						insp
burned/charred pellets						insp
Additives (composition, mass)	weight% ar	EN 14961	< 2% , FORBIDDEN IN UK	< 5% , FORBIDDEN IN UK	< 10% , FORBIDDEN IN UK	declared by seller
Physical parameters						
Diameter	mm	EN16127	6 to 8	6 to 8	6 to 8	insp & lab
Length	mm	EN16127	≤ 40 mm	≤ 40 mm	≤ 40 mm	insp & lab
Water content	% DM	EN 14774	≤ 10 %	≤ 10 %	≤ 10 %	insp & lab
Bulk (apparent) density	kg/m3	EN 15103	≥ 600	≥ 600	≥ 600	insp & lab
Max. bulk temperature	°C	EN15234-2	≤ 60	≤ 60	≤ 60	insp
Net calorific value at constant pressure	GJ/ton ar	EN 14918	≥ 16,5	≥ 16,5	≥ 16,5	lab
Ash content	weight% DM	EN 14775	1%	≤ 1,5%	≤ 3%	lab
Deform. EN Plus oxidating atm (DT)	°C	EN 15370	≥ 1200°C	≥ 1100°C	≥ 1000°C	lab
Elementary composition						
Cl	weight% DM	EN 15289	0,03%	≤ 0,1 %	≤ 0,1 %	lab
N	weight% DM	EN 15104	≤ 0,5%	≤ 1,5 %	≤ 1,5 %	lab
S	weight% DM	EN 15289	≤ 0,05 %	≤ 0,4 %	≤ 0,4 %	lab
Trace elements						
As	mg/kg DM	EN 15297	≤ 2	≤ 2	≤ 2	lab
Cd	mg/kg DM	EN 15297	≤ 1	≤ 1	≤ 1	lab
Cr	mg/kg DM	EN 15297	≤ 15	≤ 15	≤ 15	lab
Cu	mg/kg DM	EN 15297	≤ 20	≤ 20	≤ 20	lab
Pb	mg/kg DM	EN 15297	≤ 20	≤ 20	≤ 20	lab
Hg	mg/kg DM	EN 15297	≤ 0,1	≤ 0,1	≤ 0,1	lab
Zn	mg/kg DM	EN 15297	≤ 200	≤ 200	≤ 200	lab
Fines ≤ 3.15 mm	weight% ar	EN15149	≤ 4 %	≤ 4 %	≤ 4 %	insp & lab
Durability	weight% ar	EN 15210	97,5-99%	96,5%-99%	96,5%-99%	lab
Particle size distribution		EN15149-2				lab
% < 3.15 mm	weight %	EN 16126	>99%	>98%	>97%	lab
% < 2.0 mm	weight %	EN 16126	>95%	>90%	>85%	lab
% < 1.0 mm	weight %	EN 16126	>50%	>50%	>50%	lab

IWPB - WHY A COMMON SUSTAINABILITY APPROACH ?

Existing sustainability schemes



Trade of wood pellets between **BE, NL and UK** will only be possible in a close future if evidence of sustainability can be brought to the buyer

- ✓ BE has a system in place related to the grant of green certificates, but covers only raw material by country report and GHG balance through audit of processor
- ✓ UK and NL are developing a mandatory system for biomass co-firing including sustainability criteria and verification scheme for the whole supply chain

IWPB - HEADLINES OF COMMON SUSTAINABILITY APPROACH

- We will focus on
 - ✓ **wood** not excluding agricultural biomass like cultivated wood
 - ✓ **voluntary verification** and not certification
 - ✓ **8 sustainability principles:**
 - 3** being verified in details (base RED Directive)
 - 5** being assessed and improved in time (environment + socio-econ)
- Work base:
 - ✓ **check-list** based on 8 sustainability principles
 - ✓ verification and report by **independent body**
 - ✓ establish cross-compliance of **meta-standards and legislation in country of origin**
(how does this limit or change verification procedure)
- The output will be
 - ✓ **a voluntary scheme**
 - ✓ **transparent:** documented on a webpage
 - ✓ compatible with obligations/recommendations by EC and key MS

	INITIATIVE WOOD PELLETS BUYERS - SUSTAINABILITY PRINCIPLES
WILL	<p>Principle 1: GHG BALANCE</p> <p>The greenhouse gas balance of the production chain and application of the biomass shows significant savings with respect to reference fossil fuels</p>
WILL	<p>Principle 2: CARBON STOCK</p> <p>Primary biomass production does not take place at the expense of significant carbon reservoirs in vegetation and in the soil.</p>
WILL	<p>Principle 3: BIODIVERSITY</p> <p>Primary biomass product does not take place at the expense of protected or vulnerable biodiversity.</p>
AIM TO	<p>Principle 4: SOIL</p> <p>With the primary or secondary production of biomass the soil quality should be maintained or improved.</p>
AIM TO	<p>Principle 5: WATER</p> <p>With the production and processing of biomass, ground and surface water should not be exhausted and the water quality should be maintained or improved</p>
AIM TO	<p>Principle 6: AIR</p> <p>With the production and processing of biomass the air quality should be maintained or improved</p>
AIM TO	<p>Principle 7: SOCIAL</p> <p>Biomass product for energy should not endanger food supply or communities where the use of biomass is essential for subsistence</p>
AIM TO	<p>Principle 8: LOCAL PROSPERITY</p> <p>Biomass product for energy should contribute to local prosperity and to the welfare of the employees and the local population</p>

IWPB – Agenda work on sustainability criteria

- March 15th 2011: draft description of sustainability principles
- April 12th 2011:
 - ✓ Draft check-list for verification of raw material and GHG balance
- Mid June 2011: next meeting on June 10
 - ✓ Review check-list by inspection bodies
 - ✓ Next plenary meeting on June 28
- September 2011:
 - ✓ Finalized documents
 - ✓ Proposal advisory board (including some NGO's ?)
 - ✓ Website
- December 2011:
 - ✓ Approval advisory board
 - ✓ Website
 - ✓ Communication

Conclusions

Initiative Wood Pellets Buyers will lead to:

- common contract form for 7 biggest utilities in Europe
- 3 common quality specs for clean industrial wood pellets
- common approach for sustainability based on 8 principles

The Chair of IWPB is shared alternatively by Members:

6/2010 GDFSUEZ, Brussels
1/2011 RWE Geneva

9/2010 DONG, Copenhagen
3/2011 Vattenfall Rotterdam

11/2010 EON Düsseldorf,
5/2011 Drax London

The proposed specs I1 - I2 – I3 are open for reactions by wood pellets suppliers and other stakeholders including CEN TC335 and ISO TC238

The draft sustainability check-list is open for reactions by independent inspection companies



**Thanks for your attention
&
for more information**

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