



European standardization of Solid Recovered Fuels

Martin Frankenhaeuser
PlasticsEurope
Chairman CEN/TC 343

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Martin Frankenhaeuser



Outline

- Objectives and Challenges
- Background
- Mandate 325 on Solid Recovered Fuels
- CEN/TC 343 Solid Recovered Fuels
- Important issues and present status

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Objectives & Challenges

1(2)

- In order to comply with Sustainable Development there is a trend towards Integrated Resource and Waste Management. European environmental and energy policies include measures to enhance recovery of residual waste as well as to promote energy from biomass and waste. **Waste derived fuels are indigenous fuels that help achieve Security of Supply and the targets of the Kyoto Protocol.**
- **European Standards for Solid Recovered Fuels will support the free trade of these fuels on the Internal Market.** They will also be of help to equipment producers and permitting authorities, and they will help to build acceptance and trust among the public.

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Objectives & Challenges

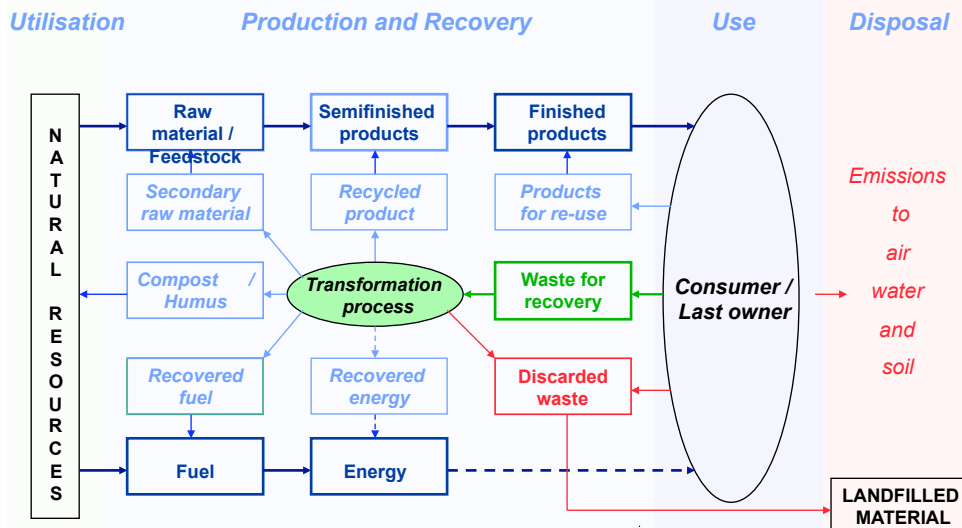
2(2)

- The full implementation of the Landfill Directive (LD) will significantly reduce the disposal of combustible waste in landfill.
- In Europe there is not enough incineration capacity to meet the targets of the LD. The use of waste derived fuels for the generation of heat and/or power or for the production of material products, e.g. clinker for cement, is a valid option.
- The Solid Recovered Fuels market needs to be developed rapidly with the help of pan-European procedures, which are accepted also by the permitting authorities.

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Integrated Resource and Waste Mgt



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Background

- **Fuel and Energy Recovery** 1997 - 1998
EC JOULE-THERMIE: DIS-1375-97-FI
Report available at jan.zeevalkink@mep.tno.nl
- **Waste to Recovered Fuel** 1999 - 2002
EC Fifth Framework Program: NNE5-1999-533
CBA available at www.gua-group.com/cba-wtrf
- **CEN BT/TF 118 Solid Recovered Fuels** 2000 - 2002
Work Programme and Report (CEN/TR 14745:2003)
- UNI 9903 *Non mineral refuse derived fuels RDF* 1992 (IT)
- SFS 5875 *Solid Recovered Fuel - Quality Control System* 2000 (FIN)
- RAL-GZ 724 *Quality Assurance of Solid Recovered Fuels* 2001 (D)

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Mandate 325 Solid Recovered Fuels 1(2)

- First step: **Develop a set of Technical Specifications (TSs)**, i.e. “pre-standards”.
- Second step: **Transform this set of TSs into European Standards (ENs)**.
- These ENs shall be presented as a package, after validation of a minimum number of TSs as agreed between the Commission and CEN BT.

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Mandate 325 Solid Recovered Fuels 2(2)

The standards shall include:

- All standards listed in the Work Programme developed by CEN TF 118 Solid Recovered Fuels (equal to those of CEN/TC 335 Solid Biofuels).
- A set of standards on the determination of the biodegradable fraction, as defined in Directive 2001/77/EC and/or the biogenic fraction of SRF and the higher and lower heating values of these fractions. CEN will provide the Commission ... with a report on the relative difference between these two fractions of waste in order to decide whether there is a need to develop two different standards or only one.

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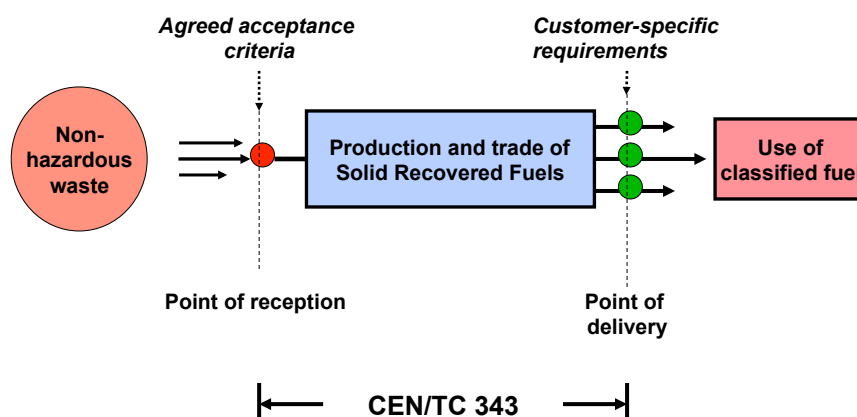
CEN TC 343 Solid Recovered Fuels

- Established on 13 March 2002
- Secretariat held by the Finnish Standards Association
- Scope
“Elaboration of Standards, Technical Specifications and Technical Reports on solid recovered fuels (RDF, etc.) prepared from non-hazardous waste to be utilised for energy recovery in waste-incineration or co-incineration plants, excluding those fuels that are included in the scope of CEN/TC 335 Solid Biofuels”

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European Standardisation of Solid Recovered Fuels



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Organization

27 Work Items grouped in 5 Working Groups

1. Terminology and Quality Assurance (IT)
2. Fuel specifications and classes (SE)
3. Sampling and supplementary test methods (NL)
4. Physical/mechanical tests (D)
5. Chemical tests (IT)

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Important issues

- WG1: Quality Management System based on ISO 9001
- WG2: Classification system and Specification template
- WG3: Determination of biodegradable/biogenic = biomass content
- TC 343: Validation of a set of Technical Specifications

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Classification system of CEN/TS 15359

Classification Property	Statistical Measure	Unit	Classes				
			1	2	3	4	5
Net calorific value (NCV)	Mean	MJ/kg(ar)	≥ 25	≥20	≥15	≥10	≥ 3
Classification Property	Statistical Measure	Unit	Classes				
			1	2	3	4	5
Chlorine (Cl)	Mean	% (d)	☒0,2	☒0,6	☒1,0	☒1,5	☒3
Classification Property	Statistical Measure	Unit	Classes				
			1	2	3	4	5
Mercury (Hg)	Median	mg/MJ (ar)	☒0,02	☒0,03	☒0,08	☒0,15	☒0,50
	80 th percentile	mg/MJ (ar)	☒0,04	☒0,06	☒0,16	☒0,30	☒1,00

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Validation of a set of TSs

- The validation was part of the EU funded multi-stakeholder project QUOVADIS (Quality Management Organisation, Validation of Standards, Developments and Inquiries for SRF) lead by Cesi Ricerca, Italy.
- The validation focussed on TSs on QMS, sampling, sample preparation as well as physical and chemical test methods, including inter-laboratory Round Robin and Robustness evaluations.
- The results were generally satisfactory, however the determination of Hg and metallic Al need further fine-tuning.
- A report is available at <http://cesiricerca.it>

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Present status of TC 343 1(2)

- **26 Technical Specifications (TS) were published by 2006.**
Terminology, QMS, Classification, Biomass content (by Selective Dissolution and ¹⁴C methods), Sampling and sample preparation, Physical and Chemical test methods (including metallic Al).
- **4 Technical Reports (TRs) have been published.**
Biodegradable/Biogenic/Biomass; Guidelines on occupational health; Key properties for classification of SRF; Combustion behaviour.
- **The QUOVADIS project was executed by end 2007. Based on the results the TSs are presently being upgraded to 23 European Norms (ENs).**

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Present status of TC 343 2(2)

- The final draft prENs will be delivered to CEN/CMC by March 2009 for public enquiry and final vote. This procedure may take another year after which the ENs will be published.
- When the ENs have been published they shall be implemented by all CEN member bodies and corresponding national standards shall be withdrawn.

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Other information

More information on SRF and related issues are available at:

www.plasticseurope.org

under *Library* / Resource Efficiency and Energy Efficiency :
e.g. the report

*'Co-combustion of Solid Recovered Fuel and Solid Biofuels
in a Combined Heat and Power plant'* (June 2008)