



European standardization of Solid Recovered Fuels

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- a sustainable option for Spain
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Outline

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



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.



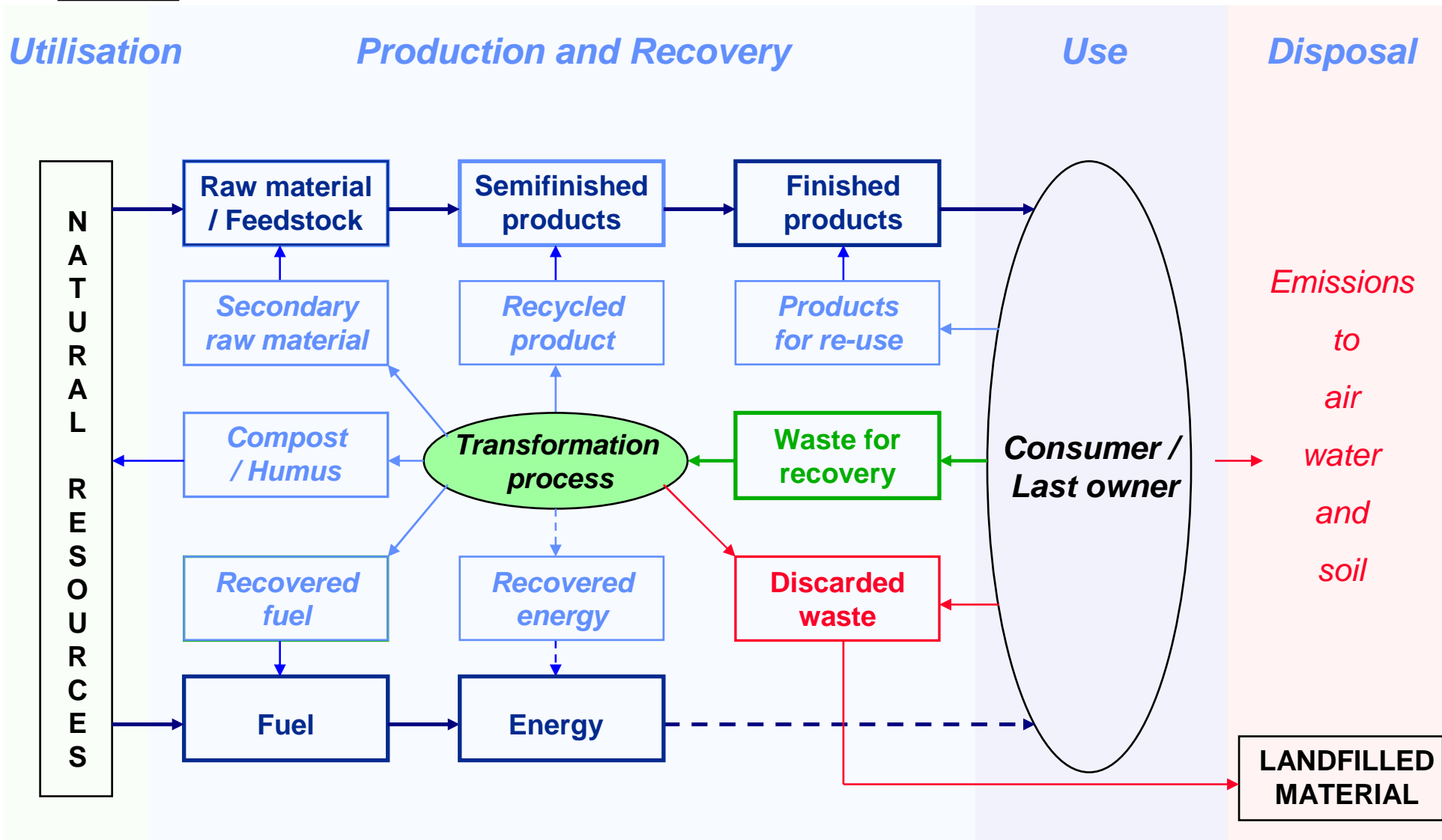
Objectives & Challenges

2(2)

- The full implementation of the Landfill Directive (LD) significantly reduces 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.



Integrated Resource and Waste Mgt





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)



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.



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.

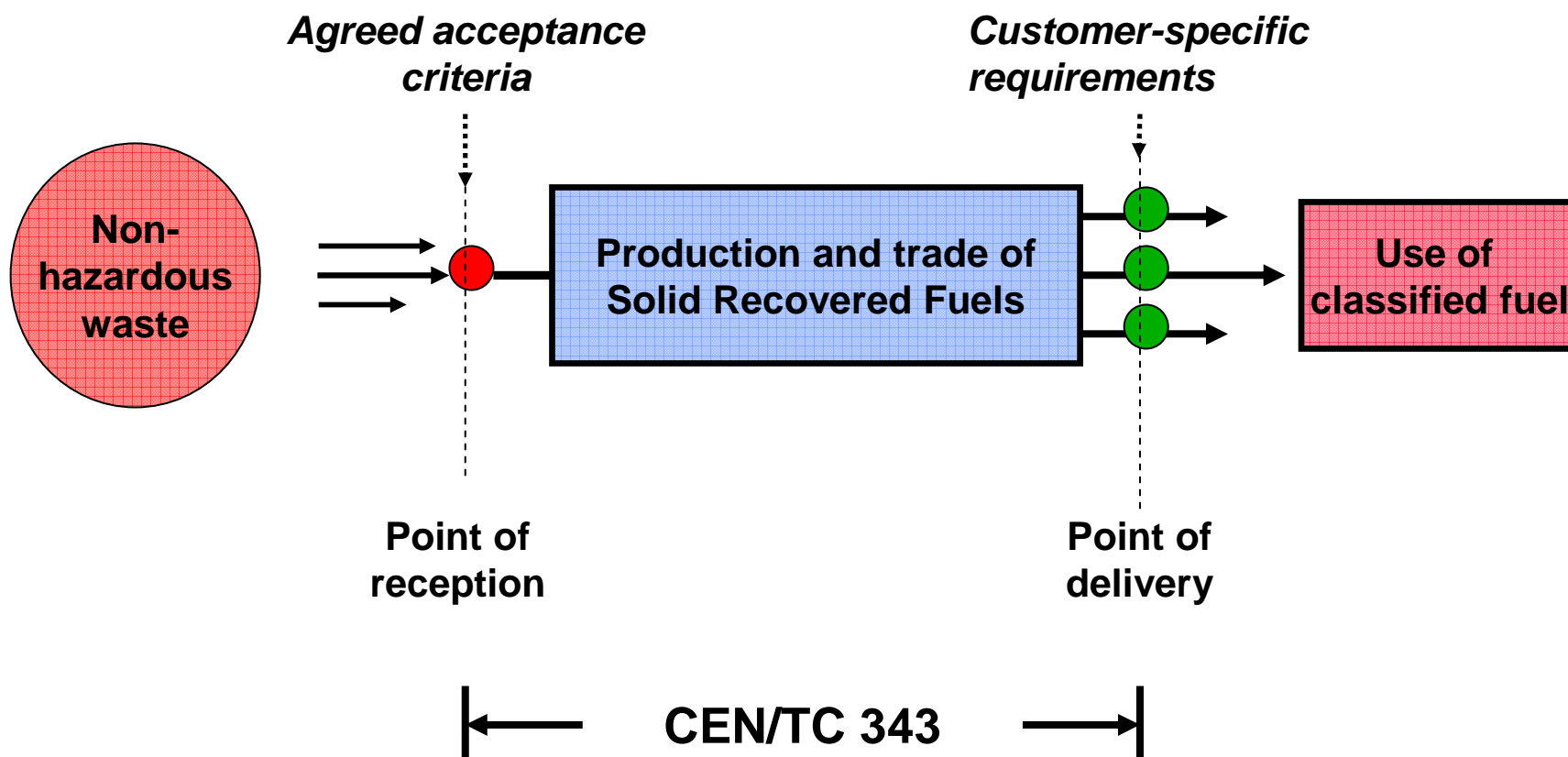


CEN TC 343 Solid Recovered Fuels

- 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”



European Standardisation of Solid Recovered Fuels





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)



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



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) | $\leq 0,2$ | $\leq 0,6$ | $\leq 1,0$ | $\leq 1,5$ | ≤ 3 |
| Classification Property | Statistical Measure | Unit | Classes | | | | |
| | | | 1 | 2 | 3 | 4 | 5 |
| Mercury (Hg) | Median | mg/MJ (ar) | $\leq 0,02$ | $\leq 0,03$ | $\leq 0,08$ | $\leq 0,15$ | $\leq 0,50$ |
| | 80 th percentile | mg/MJ (ar) | $\leq 0,04$ | $\leq 0,06$ | $\leq 0,16$ | $\leq 0,30$ | $\leq 1,00$ |



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.
- A report is available at <http://cesiricerca.it>



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.
- **Based on the results the validation project QUOVADIS the TSs are now being upgraded to 19 European Norms (ENs), 7 Technical Specifications (TS) and 1 Technical Report (TR).**



Present status of TC 343 2(2)

- The most important draft prENs have passed CEN public enquiry and are being prepared for final vote. These are prEN:
 - 15357 Terminology, definitions and descriptions
 - 15358 Quality management systems
 - 15359 Specifications and classes
 - 15440 Method for the determination of biomass content
 - 15442 Methods for sampling
 - 15443 Methods for the preparation of the laboratory sampleThe 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.



Conformity assessment

<http://www.cen.eu/cenorm/conformityassessment>

- Conformity assessment is a demonstration that specified requirements relating to a product, process, system, person or body are fulfilled.
- The purpose of conformity assessment is to provide confidence that applicable requirements have been met.
- The generic term conformity assessment includes activities such as testing, inspection, **certification** and accreditation.
- CEN provides a comprehensive range of European Standards and other publications for the implementation and recognition of good conformity assessment practices.



Certification / The Keymark System

CEN CENELEC Internal Regulations, Part 4

- *Certification system* is defined as rules, procedures and management for carrying out certification.
- *Keymark System* is defined as rules, procedures and management for carrying out certification related to products on the basis of European standards adopted by CEN or CENELEC.
- The Keymark System is made available for ***certification bodies*** who wish to offer the Keymark to their clients as a means through which their clients can demonstrate compliance of their products with the relevant European standard(s), and who are prepared to implement the Keymark System.



Other information

More information on SRF and related issues is available at:

www.cen.eu/CENORM/Sectors/TechnicalCommitteesWorkshops

and

www.erfo.info

and also

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)