



**NSAI**

# **ANNUAL REPORT 2018**

**NSAI TECHNICAL COMMITTEES**

**NSAI/TC 004/WG 1**

**NSAI/TC 047/SC1**

**NSAI/TC 047/SC 7**

## **SOLID BIOFUELS AND SOLID RECOVERED FUELS**

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## 1 Chairman's Statement

Bioenergy contributes the largest proportion of renewable energy within the EU. Throughout the Member States, solid biomass plays a substantial role in the provision of renewable heat. In Ireland, biomass contributes to dispatchable renewable electricity, and its role in the heating sector is set to expand with the introduction of a Renewable Heat Incentive. The solid biofuel standards developed by CEN/TC 335, and now being upgraded and expanded by ISO/TC 238, underpin the contractual supply of biomass for power generation; and provide a solid platform for Ireland's Wood Fuel Quality Assurance Scheme.

With restrictions on the amount of waste that can be disposed of through landfilling, the recycling and recovery of materials provides an important alternative. The solid recovered fuel standards developed by CEN/TC 343, and now under review by ISO/TC 300, will provide a coherent basis for the separation, processing, supply and trade of solid recovered fuels.

During 2018, the NSAI Mirror Committee monitored the development of international standards for solid biofuels and for solid recovered fuels and commented and contributed as appropriate.

Charles Shier,  
Chairman

## 2 Introduction

### Solid biofuels

In 2007, Sweden proposed the creation of ISO/TC 238. The reasoning behind the proposal was the growing use of solid biofuels as an important renewable energy source, and the need of international trading to secure the supply for the users. The purpose of the international standards is to simplify use and trade of solid biofuels globally. Regional and national standards already existed at this time. The European standards were used as a base for the development of the new ISO standards. This work has been led by ISO/TC 238 under Vienna Agreement with CEN.

One benefit of the collaboration with CEN is that all published standards become mandatory as national standards within EU, there will not be any conflicting national standards to consider within EU.

Benefits of standardisation of solid biofuels include:

- § Simplifying communication between fuel suppliers and customers;
- § Assuring that products and processes and solid biofuels are compatible;
- § Providing the market with tools to determine the economic value of delivered fuels; and
- § Producing a common way to control and regulate safety demands.

### Solid recovered fuels

Waste management is a global activity and one of the key elements in the protection of the environment. It also has an important role in the fight against climate change. Energy recovery from waste is practised all over the world in various forms. Solid recovered fuel is prepared from non-hazardous waste, main categories of raw material being municipal solid waste (MSW), commercial and industrial waste (CIW) and construction and demolition waste (CDW).

Preparation and use of solid recovered fuels help to reduce the amount of non-recyclable waste that is landfilled today. Solid recovered fuels can substitute solid fossil fuels and thus lower the overall

emissions of CO<sub>2</sub>. Uniform procedures based on International Standards will contribute to facilitate international trade, secure supplies and achieve high environmental and socio-economic goals.

Standardization of solid recovered fuels is seen as a key means to increase the safe and efficient use of solid recovered fuels and for their acceptability in the fuel market. Classified solid recovered fuels can be used as a substitute to fossil fuels in many sectors, such as for the production of heat and/or power.

### 3 Scope of TC

The work of NSAI/TC 004/WG 1 which actively mirrors international standardisation of solid biofuels and solid recovered fuels also incorporates electronic committees NSAI/TC 047/SC 01 "Solid recovered fuels" and NSAI/TC 047/SC 07 "Solid biofuels".

The main functions of NSAI/TC 004/WG 1 are to:

- Monitor and participate, as appropriate, in the development of standards generally with emphasis on the European and international standards programmes conducted by CEN (European Committee for Standardisation) and ISO (International Organisation for Standardisation);
- Advise and assist NSAI in connection with related developments as it deems appropriate; and
- Participate in the work of CEN and ISO.

Of special interest to the members of NSAI/TC 004/WG 1 are several CEN and ISO committees and associated Working Groups – see Table 1.

In the case of standardisation of solid biofuels and solid recovered fuels, the Vienna Agreement/ISO Lead arrangement applies. The work programme of ISO/TC 238 has largely replaced previous standardisation activity of CEN/TC 335 and ISO/TC 300 is taking over from CEN/TC 343 on solid recovered fuels.

**Table 1 – ISO/CEN Technical Committees and active Working Groups**

<b>Committee Name</b>	<b>Committee Title</b>
<b>ISO/TC 238</b>	<b>Solid biofuels</b>
ISO/TC 238/WG 1	Terminology
ISO/TC 238/WG 2	Fuel specifications and classes
ISO/TC 238/WG 4	Physical and mechanical test methods
ISO/TC 238/WG 5	Chemical test methods
ISO/TC 238/WG 6	Sampling and sample preparation
ISO/TC 238/WG 7	Safety of solid biofuels
<b>ISO/TC 300</b>	<b>Solid recovered fuels</b>
ISO/TC 300/WG 1	Terminology and quality assurance
ISO/TC 300/WG 2	Specifications and classes
ISO/TC 300/WG 3	Sampling and sample reduction
ISO/TC 300/WG 4	Physical and mechanical tests
ISO/TC 300/WG 5	Chemical tests and determination of biomass content
ISO/TC 300/WG 6	Safety of solid recovered fuels
<b>CEN/TC 335</b>	<b>Solid biofuels</b>
<b>CEN/TC 343</b>	<b>Solid recovered fuels</b>
<b>CEN/TC 383</b>	<b>Sustainably produced biomass for energy applications</b>

**Scope of ISO/TC 238**

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.

**Scope of ISO/TC 300**

Standardization of solid recovered fuels, from point of acceptance of material to be recovered to point of delivery, prepared from non-hazardous waste to be used for energy purposes, excluding fuels that are included in the scope of ISO/TC 238 and ISO/TC 28.

**4 Structure and Membership**

**4.1 Structure**

At present the National Mirror Committee (NMC) operates as a single entity covering both solid biofuels and solid recovered fuels.

**4.2 Members**

Table 2 lists the membership for 2018.

**Table 2 – Member list for 2018**

<b>Name</b>	<b>Organisation</b>	<b>Role</b>
Charles Shier	Bord na Mona	Chair
Brian Reynolds	Lagan Products (ROI)	Member
Catherine Joyce O'Caollai	Indaver Ireland Ltd.	Member
Colin Lunney	Quinn Cement	Member
Colm MacDowell	Colm MacDowell & Associates	Member
David Duff	Thorntons Recycling	Member
David Matthews	EPA	Member
Des O'Toole	Coillte	Member
John Finnan	Teagasc	Member
John Kelly	Laois Sawmills	Member
Kenneth Worrell	Worrell Harvesting	Member
Noel Gavigan	IrBEA	Member
Paul Johnston	TCD	Member
Pearse Buckley	ODB Technologies Ltd.	Member
Pieter Kofman	Consultant	Member
Seamus Breen	Irish Cement	Member
Tom Kent	WIT	Member
Vincent Upton	Dept. of Agriculture, Food & the Marine	Member

## 5 Summary of 2018 Activities

### 5.1 National

#### 5.1.1 Meetings

One committee meeting was held in 2018 (see Table 3).

**Table 3 – Committee meetings held in 2018**

Meeting No.	Date	Comment
1	21 November 2018	Meeting held at Mount Lucas Wind Farm

#### 5.1.2 National Work

The focus of NSAI/TC 004/WG 1 is providing inputs to ballots as well as responses to queries from ISO/TC 238, ISO/TC 300, CEN/TC 335 and CEN/TC 343.

### 5.2 International

#### 5.2.1 Meetings

Table 4 lists the meetings of ISO/TC 238 and its Working Groups attended by members during 2018.

**Table 4 – ISO/TC 238 and Working Group meetings attended**

Committee Name	Location	Date	No. of Attendees
ISO/TC 238 WG 2	Espoo, Finland	28 <sup>th</sup> May 2018	1
ISO/TC 238 WG 4	Espoo, Finland	28 <sup>th</sup> May 2018	1
ISO/TC 238 WG 6	Espoo, Finland	28 <sup>th</sup> May 2018	1
ISO/TC 238 WG 1	Espoo, Finland	29 <sup>th</sup> May 2018	1
ISO/TC 238 WG 7	Espoo, Finland	29 <sup>th</sup> May 2018	1
ISO/TC 238 WG 5	Espoo, Finland	30 <sup>th</sup> May 2018	1
ISO/TC 238 WG 7	Espoo, Finland	30 <sup>th</sup> May 2018	1
ISO/TC 238	Espoo, Finland	1 <sup>st</sup> June 2018	1

#### 5.2.2 International Work

##### 5.2.2.1 Solid biofuels

In 2018, the work programme of ISO/TC 238 & CEN/TC 335 (with ISO/TC 238 as the Vienna Agreement/ISO Lead) comprised:

- EN ISO 14780:2017/prA1 *Solid biofuels - Sample preparation* - Amendment 1 (ISO 14780:2017/DAM 1:2018);
- prEN ISO 17225-7 rev *Solid biofuels - Fuel specifications and classes - Part 7: Graded non-woody briquettes*;

- prEN ISO 18846-2 *Solid biofuels - Determination of fines content in quantities of pellets - Part 2: Simplified method*;
- ISO/FDIS 20023 *Solid biofuels - Safety of solid biofuel pellets - Safe handling and storage of wood pellets in residential and other small-scale applications*;
- ISO/CD 20024 *Solid biofuels - Safe handling and storage of solid biofuel pellets in commercial and industrial applications*;
- ISO/CD 20049 *Solid biofuels - Determination of self-heating*;
- ISO/CD 21404 *Solid biofuels - Method for the determination of ash melting behaviour*;
- ISO/CD 21945 *Solid Biofuels - Simplified sampling method for small scale applications and stores*.

Additional work items managed by ISO/TC 238:

- ISO/AWI 21596 *Solid biofuels -Determination of grindability - Hardgrove type method for thermally treated biomass fuels*;
- ISO/NP 20048-2 *Solid biofuels - Determination of off-gassing and oxygen depletion characteristics - Part 2: Operational method for screening of carbon monoxide off-gassing*;
- ISO/NP 20048-1 *Solid biofuels - Determination of off-gassing and oxygen depletion characteristics - Part 1: Laboratory method for the determination of off-gassing and oxygen depletion*;
- ISO/AWI 17225-9 *Solid biofuels - Fuel specifications and classes - Part 9: Graded wood chips and hog fuel for industrial use*;
- ISO/AWI 23341-1 *Solid biofuels - Determination of sorption and its effect on durability of thermally treated biomass fuels – Part 1: Pellets; ND*
- ISO/NP TR 23437 *Solid biofuels – Determination of bridging behaviour of bulk biofuels*.

### 5.2.2.2 **Solid recovered fuels**

In 2018, the work programme of ISO/TC 300 comprised:

- ISO/AWI 21637 *Solid recovered fuels - Terminology, definitions and descriptions*;
- ISO/CD 21640 *Solid recovered fuels - Specifications and classes*;
- ISO/AWI 21644 *Solid recovered fuels - Method for the determination of biomass content*;
- ISO/AWI 21645 *Solid recovered fuels - Methods for sampling*;
- ISO/CD 21654 *Solid recovered fuels - Determination of calorific value*;
- ISO/CD 21656 *Solid recovered fuels -- Determination of ash content*;
- ISO/CD 21660-3 *Solid recovered fuels - Determination of moisture content using the oven dry method - Part 3: Moisture in general analysis sample*;
- ISO/AWI 21663 *Solid recovered fuels - Methods for the determination of carbon (C), hydrogen (H), nitrogen (N) and sulphur (S) by the instrumental method*;
- ISO/AWI 21911 *Solid recovered fuels - Determination of self-heating*;
- ISO/AWI 21912 *Solid recovered fuels - Safe handling and storage of solid recovered fuels*;
- ISO/AWI TR 21916 *Solid recovered fuels - Guidance for specification of solid recovered fuels (SRF) for selected uses*;
- ISO/AWI 22105 *Solid recovered fuels - Determination of the total Sulphur content using a high temperature tube furnace combustion method - IR-detection*;
- ISO/CD 22167 *Solid recovered fuels - Determination of content of volatile matter*;
- ISO/AWI 22940 *Solid recovered fuels - Determination of elemental composition by X-ray fluorescence*.

### 5.2.3 International Standards Reviewed

Standards reviewed included:

- ISO/CD 21404.2 *Solid biofuels - Method for the determination of ash melting behaviour;*
- ISO/NP 23343-1 *Solid Biofuels - Determination of sorption and its effect on durability of thermally treated biomass fuels - Part 1: Pellets;*
- ISO/TC 238 N704-N705 SBP/Strategic Business Plan;
- ISO/CD 20024 *Solid biofuels - Safe handling and storage of solid biofuel pellets in commercial and industrial applications;*
- ISO/FDIS 20023 *Solid biofuels - Safety of solid biofuel pellets - Safe handling and storage of wood pellets in residential and other small-scale applications;*
- ISO/CD 23343-1 *Solid Biofuels - Determination of water sorption and its effect on durability of thermally treated biomass fuels - Part 1: Pellets;*
- ISO/DTR 23437 *Solid biofuels - Determination of bridging behaviour of bulk biofuels;*
- ISO/DIS 21945 *Solid biofuels - Simplified sampling method for small scale applications;*
- ISO 14780:2017/DAmD 1 *Solid biofuels - Sample preparation - Amendment 1;*
- ISO/CD 20048-2 - ISO/TC 238 N743 *Solid biofuels - Determination of off-gassing and oxygen depletion characteristics - Part 2: Operational method for screening of carbon monoxide off-gassing.*

### 5.2.4 International Voting Results

#### 5.2.4.1 Solid biofuels

The following ballots were approved during 2018.

- ISO/CD 21404.2 *Solid biofuels - Method for the determination of ash melting behaviour;*
- ISO/NP 23343-1 *Solid Biofuels - Determination of sorption and its effect on durability of thermally treated biomass fuels - Part 1: Pellets;*
- ISO/TC 238 N704-N705 SBP/Strategic Business Plan;
- ISO/CD 20024 *Solid biofuels - Safe handling and storage of solid biofuel pellets in commercial and industrial applications;*
- ISO/FDIS 20023 *Solid biofuels - Safety of solid biofuel pellets - Safe handling and storage of wood pellets in residential and other small-scale applications;*
- ISO/CD 23343-1 *Solid Biofuels - Determination of water sorption and its effect on durability of thermally treated biomass fuels - Part 1: Pellets;*
- ISO/DTR 23437 *Solid biofuels - Determination of bridging behaviour of bulk biofuels;*
- ISO/DIS 21945 *Solid biofuels - Simplified sampling method for small scale applications;*
- ISO 14780:2017/DAmD 1 *Solid biofuels - Sample preparation - Amendment 1;*
- ISO/CD 20048-2 - ISO/TC 238 N743 *Solid biofuels - Determination of off-gassing and oxygen depletion characteristics - Part 2: Operational method for screening of carbon monoxide off-gassing;*
- ISO/CD 21640 *Solid recovered fuels - Specifications and classes; and*
- Upgrading of the Project ISO/AWI TS 22940 *Solid recovered fuels - Determination of elemental composition by X-ray fluorescence* from Technical Specification to International Standard.

#### 5.2.4.2 Solid recovered fuels

The following ballots were approved during 2018.

- ISO/TC 300 N164 Request for liaison – CEMBUREAU;



- ISO/CD 21640 *Solid recovered fuels - Specifications and classes*;
- Draft ISO/CEN NWIP Environmental Checklist Template; and
- Upgrading of the Project ISO/AWI TS 22940 *Solid recovered fuels - Determination of elemental composition by X-ray fluorescence* from Technical Specification to International Standard.

### 5.3 Regulatory Development/Update

Currently, this committee is not engaged in any standards development work of a regulatory nature.

## 6 Publications and Reviews

### 6.1 Publications

#### **6.1.1 Solid biofuels – EN ISO standards published in 2018**

ISO/TC 238 published the following standard for solid biofuels during 2018:

- EN ISO 20023:2018 *Solid biofuels - Safety of solid biofuel pellets - Safe handling and storage of wood pellets in residential and other small-scale applications* (ISO 20023:2018).

#### **6.1.2 Solid recovered fuels – EN ISO standards published in 2018**

ISO/TC 300 did not publish any standard(s) for solid recovered fuels during 2018.

### 6.2 Reviews

In advance of revision by ISO/TC 238, members reviewed:

- EN ISO 17225-1:2014 *Solid biofuels - Fuel specifications and classes - Part 1: General requirements*;
- EN ISO 17225-2:2014 *Solid biofuels - Fuel specifications and classes - Part 2: Graded wood pellets*;
- EN ISO 17225-3:2014 *Solid biofuels - Fuel specifications and classes - Part 3: Graded wood briquettes*;
- EN ISO 17225-4:2014 *Solid biofuels - Fuel specifications and classes - Part 4: Graded wood chips*;
- EN ISO 17225-5:2014 *Solid biofuels - Fuel specifications and classes - Part 5: Graded firewood*;
- EN ISO 17225-6:2014 *Solid biofuels - Fuel specifications and classes - Part 6: Graded non-woody pellets*;
- EN ISO 17225-7:2014 *Solid biofuels - Fuel specifications and classes - Part 7: Graded non-woody briquettes*.

## 7 Work programme for 2019 onwards

As standardisation of solid biofuels and solid recovered fuels is now being actively managed by ISO/TC 238 and ISO/TC 300 respectively, NSAI/TC 004/WG 01 will continue to contribute to this international work. The need for an active national work programme is not foreseen given the international work programmes for these subject areas.

NSAI/TC 004/WG 01 will input as necessary to the work programme on solid biofuels (managed by ISO/TC 238 & CEN/TC 335) and solid recovered fuels (managed by ISO/TC 300 & CEN/TC 343) as outlined in Section 5.2.2 of this report.

## **8 Additional Information**

- ❖ New members Colin Lunney (Quinn Cement), David Duff (Thorntons Recycling) and Kenneth Worrell (Worrell Harvesting) were welcomed during 2018.
- ❖ The Chair of NSAI/TC 004/WG 01, Mr. Charles Shier, steps down from his role at the end of 2018. Mr. Shier has chaired NSAI/TC 004/WG 01 for almost 20 years and has contributed significantly to the field of standardisation in the areas of solid biofuels and solid recovered fuels. He has been very keen to ensure that NSAI/TC 004/WG 01 is on a firm footing before his departure and actively recruited new members during 2018. A huge debt of gratitude is due to Mr. Shier for the enthusiasm and interest he has brought to standardisation in the areas of solid biofuels and solid recovered fuels.