

An Introduction to the Biofertiliser Certification Scheme (PAS 110 and the Anaerobic Digestate Quality Protocol)

Statutory information is for guidance only and is correct at time of going to print

The Biofertiliser Certification Scheme (BCS)

Renewable Energy Assurance Ltd's Biofertiliser Certification Scheme (BCS) has been created for the purpose of certifying biogas plants for the production and use of Quality Digestate from the anaerobic digestion of source-separated biodegradable waste. The BCS comprises certification to PAS 110 and Anaerobic Digestate Quality Protocol (QP) in England, Wales and Northern Ireland and PAS 110 (with further conditions specified by SEPA) in Scotland.



Biofertiliser is the name adopted within the BCS for quality digestate. This is the by-product from a biogas plant that uses anaerobic digestion to break down source-separated biodegradable waste.

Purchasing Biofertiliser accredited to the BCS (PAS 110 and the QP [or the Scottish equivalent]) assures the user that the digestate conforms to an approved standard designed to protect the environment (including soil) and human health. This makes the product far more marketable and will be regarded as having been fully recovered and to have ceased to be waste (no longer needs to be subject to waste regulatory control). It can be dispatched with the "Biofertiliser" logo.

Anaerobic Digestion (AD)

With the implementation of the EU Landfill Directive much more biodegradable waste will have to be dealt with by other means. With strong public opposition to incineration, composting and anaerobic digestion (AD) are important ways of tackling the growing waste problem. AD is particularly appropriate for materials that are odourous or with a high moisture content (e.g. food waste and animal manures). AD is also a useful technology for releasing energy and available nitrogen from any biodegradable material that does not have a high lignin or other inhibitory material content.

AD is a biological process naturally occurring in environments with little or no oxygen. AD breaks down biodegradable materials within an airtight container, known as a digester. The AD process releases by-products, these are: biogas (typically, 60% methane) and digestate that can be used as a soil conditioner and/or fertiliser. The BCS deals only with the digestate.

AD can be used to treat all types of biodegradable wastes and to stabilise mixed waste after the removal of recyclable material, however BCS accreditation is only applicable where inputs are source-separated biodegradable wastes and non-wastes.

Anaerobic digestion is defined within PAS 110 as 'a process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for natural mesophilic or thermophilic anaerobe and facultative anaerobe bacteria species, that convert the inputs to a methane rich biogas and digestate.'

Digestate (Biofertiliser).

For the purposes of Certification to the BCS, three forms of digestate could be produced and are defined as:

Whole digestate 'material resulting from a digestion process, that has not undergone a post-digestion separation step to derive liquor and solid fibrous fractions, and that consists of no more than 15 % dry matter.'

Separated fibre 'fibrous fraction of material remaining after separating the coarse fibres from whole digestate.' The material should be capable of being stacked in a heap if it is to undergo an aerobic maturation step.

Separated liquor 'liquid fraction of material derived from a digestion process followed by separation of whole digestate.'

PAS 110: 2010 Specification for the whole digestate, separated liquor and separated fibre derived from source-segregated biodegradable materials.

The foundation for PAS 110 was the Renewable Energy Association's Draft Scottish Digestate Standard of May 2007, written by Vicky Heslop and David Collins in partnership with Professor Stephen Nortcliff and Dr Becky Arnold of Reading University with the sponsorship of Highlands and Islands Enterprise, Scottish Enterprise Energy Group and the Scottish Environmental Protection Agency.

PAS 110 has been sponsored by The Waste & Resources Action Programme (WRAP) and developed in conjunction with the Renewable Energy Association and the Association for Organics Recycling (formally the Composting Association), in collaboration with The British Standards Institution (BSI).

Accreditation to PAS 110 ensures producers of digestate are able to demonstrate due diligence in the recovery of bio-degradable materials and that the resulting digestate is 'fit for purpose'. However, PAS 110 is a non-statutory document therefore all producers must comply with the existing statutory requirements and the conditions of their permit for digesting the waste.

PAS 110 specifies the requirements for the whole digestion process including: the feedstock, process record keeping, minimum quality of the digestate, labelling, storage and traceability of the digestate. PAS 110 requires the establishment of a Quality Management System (QMS) that includes Hazard Analysis and Critical Control Points (HACCP).

The Quality Protocol – End of waste criteria for the production and use of quality outputs from anaerobic digestion of source-segregated biodegradable waste.

The Anaerobic Digestate Quality Protocol has been developed by the Business Resource Efficiency and Waste Programme (BREW), the Waste Resources Action Programme (WRAP) and the Environment Agency (EA). It is applicable in England and Wales and sets out the criteria for the production of quality digestates through anaerobic digestion of source separated bio-degradable waste.

Quality digestate will normally be regarded as having ceased to be a waste and therefore no longer subject to waste regulatory controls when it has been despatched to the customer, provided that it meets the following criteria:

- The digestate is produced using only source separated input materials, listed in the Protocol.
- The digestate meets the requirements of an approved standard. (e.g. PAS 110).
- The digestate is destined for appropriate use in one of the designated market sectors, i.e. land restoration and agriculture, forestry and soil-grown horticulture.

Digestate not complying with the Anaerobic Digestate Quality Protocol will be considered a waste and waste regulatory controls will apply to its handling, transport and application.

Additional criteria to PAS 110 include: ensuring all input materials are of a type listed in the Protocol's input list, for each batch of consignment of digestate despatched a 'Contract of Supply' must be issued and records must be kept of digestate being spread on agricultural or soil-grown horticultural land.

Producers complying with PAS 110 and the Anaerobic Digestate Quality Protocol can use the Biofertiliser Scheme's Logo and will be given a unique Certification Number to use in 'Contracts of Supply' to aid traceability.

Please note that separated fibre from a digester that is stabilised after the digestion and separation process with the addition of further biowaste, is outside the scope of PAS 110 and the QP. However, PAS 100 specifications for composted materials, may be applicable.

Certification

In England and Wales the BCS criteria are the PAS 110 together with the Quality Protocol (QP) for the production and use of quality digestate from the anaerobic digestion of source-separated biodegradable waste. Biogas plants in Scotland will be certified only with regard to the PAS 110 (not the QP) with further conditions specified by Scottish Environment Protection Agency (SEPA). Copies of PAS 110, the QP and a 'Guide to Operators' can be downloaded from the Biofertiliser website - www.biofertiliser.org.uk.

Inspections and certification must be carried out by one of the Certification Bodies (CBs) approved by REAL to manage the Biofertiliser Scheme.

Application forms can be obtained from the CB or REAL together with template documents for the required record keeping. Application to the Scheme does not guarantee certification. This can only be achieved by compliance with the requirements of PAS 110 and the QP (or the Scottish equivalent).

Once the full application documents and the appropriate fee has been received by the CB, they will be assessed by the Certification Officer (CO) and if all is in order an inspection will be arranged. The inspector will send the report to the CB where it is assessed together with any information sent in before the inspection, by a CO. If no non-compliances have been raised by the Inspector, nor by the CO when reviewing the report, the site is awarded a Certificate of Compliance. If the CO considers that more information is required or evidence of corrective actions need to be submitted s/he will request this information and wait until s/he receives it before issuing a certificate.

Each operator will then be inspected at least annually.

Please note that advice cannot be provided by the Certification Body.

Why choose Organic Farmers and Growers as your Certification Body

Organic Farmers and Growers (OF&G) is one of the approved CBs contracted to manage the BCS Scheme. OF&G operates to BS EN 45011 and assesses compliance to PAS 110 and the Quality Protocol. The process is overseen by an impartial committee and will be audited by UKAS. OF&G can offer guidance on matters relating to compliance with the standards.

OF&G are the only CB to certify to the BCS and also AfOR's Compost Scheme (PAS 100 and the Compost Quality Protocol).

OF&G were the first organic control body to be accredited by the Government in the UK.

Organic Farmers & Growers inspects and certifies –

- All organic agricultural sectors including: arable; dairy; beef; sheep; pigs; poultry and horticulture
- All organic food processing sectors including: abattoirs; food manufacturers; importers: retailers and wholesalers
- Organic animal feed compounders
- Approved farm inputs
- Approved food processing inputs such as non-organic ingredients
- Organic cosmetics and bodycare products
- Organic textiles

All of the OF&G technical staff have many years experience in the relevant industry and can speak with knowledge and confidence on a variety of issues. This is under-pinned by our excellent administration team who have considerable experience in handling enquiries and sourcing relevant information.

References:

WRAP (2009) *PAS 110:2009 Specifications for whole digestate, separated liquor and separated fibre from source separated biodegradable materials*. BSI: London

WRAP (2008) *The Quality Protocol for the production and use of quality outputs from anaerobic digestion from source-segregated biodegradable waste*. Environment Agency.

Defra (2007) *UK Biomass Strategy 2007 working paper 3, Anaerobic Digestion*. Defra.

Friends of the Earth (2004) *Briefing, Anaerobic Digestion*. FOE: London.

Information:

Certification to BCS and to request an application pack. **Organic Farmers and Growers**.
Tel: 01939 291800 or 0845 330 5122. Websites: www.organicsrecycling.co.uk or
www.organicfarmers.org.uk

Information regarding the BCS and AD in general. **Renewable Energy Assurance Ltd (REAL)**.
Tel: 0207 925 3570 Website: www.biofertiliser.org.uk

The Scheme, anaerobic digestion, composting and recycling in general. **WRAP**.
Tel: 0808 100 2040 Website: www.wrap.org.uk/composting

Composting in general. **Association for Organics Recycling (AFOR)**
Tel: 01295 819 900 or 08701 603270 Website: www.organics-recycling.org.uk

Waste Management Licences or Exemptions. **Environment Agency**.
Tel: 08708 506 506 Website: www.environment-agency.gov.uk/subject/waste

Environment and Heritage Service, Northern Ireland.
Tel: 028 9025 4754 Website: www.ehsni.gov.uk/enviroprotect

Scottish Environment Protection Agency.
Tel: 01786 457700 Website: www.sepa.org.uk

For the policy position of SEPA regarding when compost is no longer a waste.
Website: www.sepa.org.uk/guidance/index.htm#waste

Relevant Legislation.

The following legislation must be considered when dealing with digestate. This is not a definitive list.

European Communities Commission Regulation (EC) No 208/2006 amendment of Annexes VI and VIII to Regulation (EC) No. 1774/2002. Processing standards for biogas and composting plans and requirements for manure. Luxembourg: Office for the Official Publications of the European Union.

Acts of Parliament and Regulations are published by Her Majesty's Stationary Office. More information is available from Public Sector Information www.opsi.gov.uk

The Waste Management Licensing Regulations 1994 (as amended).

The Environmental Protection Act 1990.

Animal Health, The Animal By-Product Regulations 2005 (England), 2006 (Wales), 2003 (Scotland) and 2003 (Northern Ireland).