Achieving PAS110 Compliance to Enhance the Value of your Digestate

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Covering:

• Introduction to PAS110 and the Anaerobic Digestion Quality Protocol

• Why Achieving PAS110 is Worthwhile

• Implications of Recent Changes to Animal By-products Legislation

• Case Experiences as Consultancy Provider
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Introduction to PAS110 and the Anaerobic Digestion Quality Protocol

BSI PAS110 - Producing Quality Anaerobic Digestate

• The publicly-available specification (PAS) BSI PAS 110 aims to remove the major barrier to the development of AD and its markets for digestion process outputs by creating an industry specification against which producers can verify that they are of consistent quality and fit for purpose.
BSI PAS110 - Producing Quality Anaerobic Digestate

Major Barrier

Need to encourage the use of these digested materials

The use of digestate is controlled by the Environmental Permitting Regulations in England and Wales or Waste Management Licencing in Scotland

Where the Anaerobic Digestion Quality Protocol has been adopted, this material can (provided it complies with PAS110) be exempted from these regulations
Anaerobic Digestion Quality Protocol

The ADQP sets out the criteria for the production of quality outputs from anaerobic digestion of materials that is biodegradable waste.

Quality digestates from AD include whole digestate, separated liquor or separated fibre.

If the requirements of the ADQP are met, quality outputs from AD can normally be regarded as having been fully recovered and have ceased to be waste when despatched to the customer - other regulations may still apply.
Anaerobic Digestion Quality Protocol

Figure 2: Main stages and control mechanisms of the Quality Protocol

1. Input Materials
   - Obtain information on source of waste to assess suitability in line with appropriate standard listed in Appendix C
   - Rejected

2. Production process
   - In accordance with agreed standard/specification
   - Rejected

3. Output
   - Sample and test in accordance with GMP requirements and approved standard for designated applications
   - Rejected

4. Documentation
   - Provide supply documentation and quality statement

Processed quality digestate

Supply to customer

Designated market sectors as seen in 2.2.4
BSI PAS110 - Producing Quality Anaerobic Digestate

BSI PAS 110 covers all AD systems that accept **source-segregated** biowastes

It specifies:

• Controls on input materials and the management system for the process of anaerobic digestion and associated technologies

• Minimum quality of whole digestate, separated fibre and separated liquor

• Information that is required to be supplied to the digestate recipient

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PAS110 - Main Elements (Requirements)

✓ Quality Management System (QMS)

✓ Hazard Analysis and Critical Control Points (HACCP) system

✓ Input Control

✓ Process Management, Separation and Storage

✓ Sampling

✓ Validation

✓ Dispatch, Labelling, Use

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Why Achieving PAS110 is Worthwhile

Compliance to PAS110 demonstrates to customers that:
✓ It is a product of consistent high quality
✓ It has been produced in compliance with a HACCP and QMS
✓ Traceability is possible
✓ It is fit for purpose

Benefit of using PAS110 digestate:
✓ N, P, K inputs
✓ Soil conditioner
✓ Potential reduction in use of mineral fertilisers
✓ Potential reduction in carbon footprint

Benefit to producer:
✓ Outlet/Market? for material produced
✓ Not producing a waste
✓ Not subject to waste management permit costs
✓ Cost centre to profit centre
Cost Benefits

- £0
- £5,000
- £10,000
- £15,000
- £20,000
- £25,000
- £30,000
- £35,000

- 12,000
- 25,000
- 80,000

AD plant throughput (tonnes)

- waste permits
- Validation
- ongoing costs
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Implications of Recent Changes to Animal By-products Legislation

ABPR Control Regulation (EC) 1069/2009

• Implementing Regulation (EC) 142/2011

• Applied 4 March 2011

• Administered and enforced in England by Animal By-Products (Enforcement) England Regulations 2011

• Parallel legislation in devolved administrations
Biogas Installations can treat:

- Category 3 material, including catering waste
- Manure and gut contents
- Pressure cooked category 2 material
- Must ensure all material achieves required treatment standards
Recent Changes to Animal By-products Legislation

Amendment to Regulation (EC) 142/2011

• Regulation (EU) 294/2013 of 14 March 2013

• Redefines digestion residues as:
  “residues, including the liquid fraction, resulting from the transformation of animal by-products in a biogas plant”

• The production of biogas leads to the generation of solid or liquid fractions.

• It is necessary to clarify that the requirements on the disposal of those residues apply to both fractions - liquid and solid subject to ABP rules
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Significant implications for material going down drain
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• Case Experiences as Consultancy Provider
Case Experiences

Varied Footwear

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Case Experiences

“Individual Concerns”

“Corporate Businesses”
Hazard Assessment and Plan

Hazard Analysis
• process of collecting and evaluating information on hazards and conditions leading to their presence to decide which are significant for the production of safe digested materials

Hazard Analysis and Critical Control Point (HACCP)
• system used for the identification, evaluation and control of hazards which are significant for the production of digested materials that can be used without harm

HACCP Plan
• document prepared in accordance with HACCP principles, to ensure control of hazards that are significant for the production, storage, supply and use of digested material without harm
Corporate Approach

Quality Management System (QMS)

• management system to direct and control an organization with regard to quality
## Checklist

<table>
<thead>
<tr>
<th>Ref</th>
<th>Standard</th>
<th>Compliance</th>
<th>Evidence</th>
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<tbody>
<tr>
<td></td>
<td>4.1.1</td>
<td>A QMS specific to defined digestion process and resulting digested material output types shall be established and maintained.</td>
<td></td>
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<tr>
<td>1.</td>
<td>4.1.2</td>
<td>Digested material output types placed on market as compliant shall comply with BCS requirements. Scotland: no blending with any other materials such as digestates, composts, materials, products or additives is permitted.</td>
<td></td>
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<tr>
<td>2</td>
<td>4.1.3</td>
<td>Senior management shall:</td>
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<tr>
<td>3</td>
<td>4.1.3a</td>
<td>ensure sufficient resources (people, infrastructure, equipment, work environment) for establishment, implementation, maintenance and improvement of the QMS;</td>
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<tr>
<td>4</td>
<td>4.1.3b</td>
<td>ensure responsibilities and authorities are defined utilising at least a staff organogram and are communicated within the organisation;</td>
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<tr>
<td>5</td>
<td>4.1.3c</td>
<td>establish quality policy for digested material produced under this QMS;</td>
<td></td>
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<td>6</td>
<td>4.1.3d</td>
<td>communicate that digested material is fit for purpose;</td>
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<tr>
<td>7</td>
<td>4.1.3e</td>
<td>establish appropriate communication processes within organization and ensure communication regarding effectiveness of QMS; and</td>
<td></td>
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</table>

Note: Where this document states ‘compliant with BCS’ or similar, the Standard will state ‘compliant with PAS110’ or similar. The Reference Numbers refer to PAS110 unless prefixed with QP or BCS Scotland. The Appendices referred to are from the QP.