

Regulation of Outputs from Anaerobic Digestion Processes

Background

Anaerobic digestion (AD) is a managed biological process in which biodegradable waste is broken down by naturally occurring micro-organisms in the absence of oxygen to produce a stabilised residue, commonly called “digestate”, which is rich in nutrients such as nitrogen, phosphorus and other elements required for healthy plant growth and fertile soil.

The majority of AD derived digestates are applied to land to return useful amounts of organic matter to soils. For the purposes of this position statement, ‘digestates’ means whole digestate (a mixture of liquor and fibre), liquor, and separated fibre from anaerobic digestion.

This Regulatory Position Statement sets out how SEPA will regulate the use and handling of digestate outputs from the AD process.

Regulation of AD Outputs

The regulation of AD outputs depends upon the following criteria:

1. Whether the digestate meets the specification in PAS110 and Additional Scheme Rules for Scotland¹
2. The conditions set out in SEPA’s Position on the Use of PAS110 Digestate below.
3. Whether the digestate was produced using only agricultural wastes (see Part 2 below) and other non-wastes (e.g. energy crops grown specifically for anaerobic digestion)

Digestates derived from waste materials are normally regarded as waste and their use is controlled under waste management legislation. However, in certain circumstances SEPA will not seek to apply these controls.

Note, that in all cases the digestates can only be used where their use will not pose a risk to human or animal health or the environment.

The use of the digestates must comply with all other regulatory controls and must be in accordance with best practice. For use in agriculture, such requirements include:

- CAR Diffuse Pollution General Binding Rule (DP GBR)18: Fertiliser storage and application²
- Prevention of Environmental Pollution From Agricultural Activity Code of good practice (PEPFAA code) and the Four Point Plan
- Nitrate Vulnerable Zones Regulations (NVZ regulations).

Part 1- SEPA’s Position on the Use of PAS110 Digestate

SEPA considers that the application of waste controls to the use on land of digestates certified to PAS 110 and Additional Scheme Rules for Scotland would be disproportionate. Therefore SEPA will not apply waste regulatory controls to waste derived digestates from AD processes as long as the production and usage complies with the conditions listed below.

1. AD facilities and processes that produce the digestates from waste must have the relevant environmental authorisation and operate in compliance with that authorisation.

¹ Such as limits on physical contaminants (including plastic) as set out in the [Cattle & Sheep Standards](#) published by QMS

² Information on the Diffuse Pollution regime including copies of General Binding Rules is available on SEPA’s website at http://www.sepa.org.uk/land/land_publications.aspx

- The AD process and any digestates produced must be certified to conform to the standards contained in BSI PAS110:2014, the Additional Scheme Rules for Scotland and the additional quality standard in Table 1.

Table 1: Quality standards and implementation timescale

Date	Total Nitrogen (N) (kg/t)	<1	1-1.9	2-2.9	3-3.9	4-4.9	5-5.9	6-6.9	7-7.9	8-8.9	9 and above	
From 1 Dec 2017	Total plastic (g/t)	20	35	55	70	90	110	125	145	160	180	50% of current PAS110
From 1 Dec 2018	Total plastic (g/t)	10	17.5	27.5	35	45	55	62.5	72.5	87.5	90	25% of current PAS110
From 1 Dec 2019	Total plastic (g/t)	3.2	5.6	8.8	11.2	14.4	17.6	20	23.2	25.6	28.8	8% of current PAS110

- Input materials shall be source segregated biowastes³ and/or source segregated biodegradable⁴ materials. These include, but are not restricted to, wastes listed in Appendix B of the Anaerobic Digestion Quality Protocol (ADQP) and Annex 1 to this document.
- The digestates must meet PAS110:2014 without having to be blended with any other materials including other digestates, composts, materials, products or additives.
- The PAS 110:2014 certification process must be carried out by a third party accredited by the United Kingdom Accreditation Service to carry out this certification. (Digestates from AD plants which have not yet completed the certification process will be regulated as waste until full certification is achieved).
- Steps must have been taken to exclude potentially polluting or toxic materials or products from the feedstock. This includes invasive plant species such as Giant Hogweed, Japanese Knotweed, Himalayan Balsam and toxic species such as Ragwort and Yew.
- No waste from the leather industry, except wastes falling within the EWC and description in table 2 below, or sludges from sewage treatment processes can be included as input material to the AD process producing the digestates.

Table 2: EWC description and restrictions

EWC	EWC Description	Restrictions
04 01 01	Wastes from leather industry	Fleshings and lime split wastes. Only allowed if hides and skins, or part of them, originating from animals that did not show signs of any disease communicable through that product to animals or humans are digested in accordance with the EU ABPR ⁵ at a facility subject to approval under ABPR and the UK legislation.
04 01 05	Tanning liquor free from chromium	
04 01 07	Sludges, in particular from on-site effluent treatment, free of	

³ From PAS110:2010 "biowaste" is a waste of animal or plant origin which can be decomposed by micro-organisms, other large soils borne organisms or enzymes.

⁴ From PAS110:2010 "biodegradable" means capable of undergoing biologically mediated decomposition.

⁵ EU ABPR means [Regulation \(EC\) 1069/2009](#) laying down health rules as regards animal by-products and derived products not intended for human consumption and its accompanying implementing [Regulation \(EC\) 142/2011](#) which apply from 4 March 2011. In Scotland these Regulations are administered and enforced by the [Animal By-Products \(Enforcement\) \(Scotland\) Regulations 2011](#).

chromium

8. The digestates must be used without requiring any further processing or recovery operations. They must not be used in quantities or reapplied on the same land at frequencies that will endanger human health or use processes or methods which could harm the environment (i.e. pose a risk to water, air, soil, plants or animals; cause nuisance through noise or odours; or adversely affect the countryside or places of special interest).
9. The digestates have been dispatched to the end user and there is certainty of use for that material. PAS110 certified digestates being stored in intermediate storage (either on or outwith the site of production) with no identified end user will be regarded as waste.

Digestates from AD processes which do not comply with the above conditions will be subject to full waste regulatory controls. Any digestates that are subsequently discarded or mixed with other waste materials will also be subject to full waste regulatory controls.

Part 2- SEPA’s Position on Outputs from AD Plants Treating Agricultural Wastes

SEPA considers that agricultural manures and slurries⁶ are not waste if they are used directly on agricultural land, providing they are being used as a fertiliser or soil conditioner to meet the crop requirements of that land (i.e. the use is beneficial to the land) in accordance with the PEPFAA Code and the Four Point Plan.

Manures and slurries are regulated as waste when used in a composting or biogas (AD) plant. Therefore, unless the output from the AD process complies with SEPA’s position statement on PAS110 digestate, its handling and use should comply with the requirements of waste legislation.

However, we recognise that the digestate produced from manure and slurry can have beneficial fertilising properties and will have less of an environmental impact than undigested manure and slurry. To reflect this, SEPA will not apply waste regulatory controls to the digestate if:

- the only waste feedstock to the AD plant is agricultural manure and slurry and the output is spread as a fertiliser on agricultural land in compliance with other regulatory controls, such as the PEPFAA Code, the Four Point Plan and the NVZ Regulations⁷, or
- agricultural manure and slurry is mixed with a non-waste feedstock e.g. crops grown specifically for AD and it is spread as a fertiliser on agricultural land in compliance with other regulatory controls, such as the PEPFAA Code, the Four Point Plan and the NVZ Regulations.

If the manure and slurry feedstock is mixed with other waste feedstocks, e.g. animal feed and green waste including any crops not specifically grown for AD such as discarded vegetables and excess silage, then the resultant digestate will be regulated as waste.

Excessive use of AD residues may be regarded as disposal and would require a landfill permit under the Pollution Prevention and Control (Scotland) Regulations 2012.

Please note that this regulatory position applies only in respect of waste regulatory controls. Other regulatory regimes such as the Water Environment (Controlled Activities) (Scotland) Regulations 2011 may still apply. You are advised to check with your local SEPA office or on the water regulation pages of the SEPA website⁸.

Definitions

“Agricultural waste” is defined in the WMLR as “waste from premises used for agriculture”.

⁶ Slurry is defined in the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003 as a mixture consisting wholly of or containing excreta, bedding, feed residues, rainwater and washings from a building or yard used by livestock, dungsteads or middens, high level slatted buildings and weeping wall structures, or any combination of these, provided such excreta is present. The PEPFAA code states that drainage from parlour standings and the parlour pit must be collected and contained and that this may be included in the slurry system. These washings may contain milk residues, excreta and cleaning chemicals.

⁷ The Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2008

⁸ http://www.sepa.org.uk/water/water_regulation.aspx

'agriculture' includes horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes, and "agricultural" shall be construed accordingly". Commercial markets, auctions and food processing facilities do not fall within the 1948 Act definition of agriculture and SEPA considers that wastes from these facilities are not agricultural waste.

Note also that forestry waste from commercial forestry plantations does not fall under the description of "agricultural waste".

SEPA's interpretation of the definition of "livestock" is that it includes aquaculture and bee keeping by primary producers (not markets, auctions or processing facilities) and waste from these activities can be classed as agricultural waste.

Limitations

This statement applies only in Scotland. The terms of this statement may be subject to periodical review and be changed or withdrawn in light of technological developments, regulatory or legislative changes, future government guidance or experience of its use. SEPA reserves its discretion to depart from the position outlined in this statement and to take appropriate action to avoid any risk of pollution or harm to human health or the environment.

Annex 1- Additional Waste Types

Subject to the conditions above, the following waste types are acceptable inputs to the anaerobic digestion process:

EWC	Description	Restriction	Date Added
07 07 12	Sludges from on-site biological effluent treatment other than those mentioned in 07 07 11.		December 2011
16 03 05	Off specification batches and unused product	Alcohol and alcoholic beverages only	May 2012
02 01 02	Category 2 and Category 3 fish morts	- the fish waste has been treated to the required ABPR standard for the category of material - the Animal and Plant Health Agency has issued the appropriate approval for the premises and is satisfied that the plant can handle the material - the PPC permit allows the treatment of the material	January 2017

Useful Links:

For further information and guidance on good practice for the use of digestates see:

[Land publications](#)⁹: information on the Diffuse Pollution regime including copies of General Binding Rules

[Agricultural waste](#)¹⁰: specific information relating to the management of agricultural waste

[PEPFAA Code](#)¹¹: The purpose of this Code is to provide practical guidance for farmers and those involved in agricultural activities, including farm advisers, on minimising the risks of environmental pollution from farming operations.

[Guidelines for Farmers in Nitrate Vulnerable Zones](#)¹²: Guidance from Scottish Government providing step by step advice on all the rules that apply in the revised Action Programme for Nitrate Vulnerable Zones.

⁹ http://www.sepa.org.uk/land/land_publications.aspx

¹⁰ http://www.sepa.org.uk/waste/waste_regulation/agricultural_waste.aspx

¹¹ <http://www.scotland.gov.uk/Resource/Doc/37428/0014235.pdf?lang=e>

¹² <http://www.scotland.gov.uk/Publications/2008/12/12134339/0>