No:	Section	Page	Proposed EU EoW Specifications	Current PAS110/ADQP/SEPA	Comments
1	4.4	136	Organic matter: minimum 15 % w/w dry matter	Declare result, no minimum.	This is to prevent dilution of compost/digestate with mineral components.
2	4.4	136 - 138	Minimum stability - 'Unless an eligible alternative method has been specified by the competent authorities' the digestate must meet at least one of the following three criteria: • Respirometric index of maximum 50 mol O_2/kg organic matter/h • Organic acids content of max 1,500 mg/l • Residual biogas potential of maximum 0.25 l/ g volatile solids. 'As an eligible alternative, the competent authorities of a Member State may complement or replace the three methods described above with another method and associated limit value providing equivalent stability guarantees.'	VFA screening value 0.43 g COD / g VS, & Residual Biogas Potential (RBP) Test Limit of: 0.25 l / g VS	Would allow retention of RBP or adoption of other tests that set equivalent limits ('stability guarantees'). To re-iterate to JRC-IPTS that UK RBP limit is currently under review. To check that if UK moves to a different RBP limit, what 'equivalence' evidence the competent authorities would need to provide to EC, if any. Will option of 3 tests and associated limits push industry to do all 3 stability tests on each sample in the hope that the sample complies with at least one? Is this perceived as an expensive burden or welcome flexibility?

					To consider complication for certification bodies who evaluate compliance, e.g sample 1 complies on organic acids, sample 2 complies on respirometric index, sample 3 complies on RBP.
3	4.4	138	Pathogen indicator species No salmonella in 25 g fresh matter. *E. coli* 1000 CFU / g fresh matter.	No salmonella in 50 g fresh matter. *E. coli* 1000 CFU / g fresh matter.	
4	4.4	138	2 viable weed seeds per litre of compost/digestate.	Not currently a PAS 110 requirement.	Would entail a "growing" test in a laboratory.
5	4.4	138	Limits on macroscopic impurities / physical contaminants: Glass, metal & plastics > 2 mm must not exceed 0.5 % m/m dry matter. 'Distinguish between natural impurities such as stones and manmade impurities.'	Same for glass, metal, plastic, other fragments. Stones are treated separately (see below).	
6	4.4	138 - 139	Heavy Metals – mg/kg (dry weight) Zn – 600 *Cu – 200* Ni – 50 Cd – 1.5 *Pb – 120*	Heavy Metals – mg/kg dm (dry weight) Zn – 400 *Cu – 200* Ni – 50 Cd – 1.5	Lead (Pb) limit is a tighter than in PAS 110, zinc (Zn) limit is less tight than in PAS 110.

			Hg – 1 Cr - 100	*Pb – 200* Hg – 1 Cr - 100	
7	4.4	139	Organic Pollutants - Polycyclic aromatic hydrocarbons (PAH_{16}): Sum of naphthalene, acenaphtylene, acenaphtene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenzo[a,h]anthracene and benzo[ghi]perylene) must not exceed 6 mg/kg (dry weight).	PAH testing not required and no limit set.	Likely cost per sample for PAH_{16} testing in UK is approx. £120 (excl VAT), approx. 143 (excl tax).
8	4.4	143	Sampling & Analysis • Testing within an external accredited independent QA framework (accredited laboratories) • CEN TC 400 Horizontal standards for sampling and analysis, or in their absence CEN TC 223 standards or in absence of both, 'other internationally recognised test methods' unless the competent authority prescribes a certain	Sampling is currently carried out by operators and tests done by independent laboratories.	Cost of sampling and testing would be higher than BCS. Table 13 in JRC document (page 142) shows total sampling and testing costs of €5,600 for a 40kT plant and €3,200 for a 20kT plant. However some figures can be disputed – test for PAH_{16} are considered by JRC at €150 per sample.

			standard. • Probabilistic principle - (*Frequency of sampling and testing: proposes 'probabilistic sampling' [and testing] - "the magnitude (severity) of the possible adverse consequence(s), and the likelihood (probability) of occurrence of each consequence".)* **First ('recognition') year** • up to 3000 tonnes input material per year requires one sample tested for every 1000 tonnes input material (if result not a whole number, round up to next whole number), • between 3000 and 20,000 tonnes input material per year, at least 4 samples required (one sample every season), • above 20,000 tonnes input material per year the number of samples to be tested is calculated by: 'amount of annual input material (in tonnes)/10000 tonne + 1', (if result not a whole number, round up to next whole number). Max of 12 analyses		BCS seriously concerned about total costs of independent sampling and additional testing. Such concerns previously raised by REA/ORG in feedback to JRC. Costs and feasibility of laboratory accreditation for each method of test are also a concern and have previously been flagged to JRC by Defra.

			per year. **Each year after recognition** • Default minimum sampling & analysis frequency = Annual input/10000 +1 (if result not a whole number, round up to next whole number). • Unless opposed by the competent authority, 'provided all analysis results in a given year respect the specified limit values from the end-of-waste product quality criteria': **1)** in the next year 50 % of samples must be taken by accredited external samplers and the remainder can be taken by trained plant personnel, 'as long as all measurement results during a year respect the limit values'. **2)** number of PAH_{16} samples tested = annual input (in tonnes)/50000 (if result not a whole number, roundup to next whole number). Minimum of 1 and maximum of 12. All samples for PAH_{16} testing must be taken by external		

			independent samplers. **'Important changes'** • In case of important changes (> 20 %) in source or composition of input material the measurement frequency for inorganic & organic pollutants is reset to the measurement frequency of the first year.		
9	4.5	Table 14 Page 151	**Scope of Input Materials** Input materials falling within scope (Allowable Input Sources[1]) • Parks, gardens, green spaces • Households • Caterers & Restaurants • Food & Beverage retail premises • Food & Beverage processing plants • Horticulture • Forestry • Agriculture – straw, residues, silage, energy crops, catch crops, manure • Fishery & aquaculture	Core principle of source separation for England, Wales and NI - ADQP has a positive list. Provides confidence to users but in inflexible for new feedstock sources. Scotland - SEPA does not use ADQP & has a flexible approach to	No EWCs used – this gives flexibility but is it clear? Member State competent authorities can and some are likely to draw up their own more detailed positive lists, providing more detailed definition of each allowable waste type and identifying relevant EWC(s) for each one. What do the competent authorities in the UK envisage?

[1] This table is only a synopsis – for details see Table 14 on page 151

			• Animal By Products Category 2 & 3 Input materials falling outside scope (Non-Allowable Input Sources[2]) • MBT • Sewage, paper, industrial sludges • Contaminated waste • Materials from sites with high pollution risks[3] • Non-biodegradable wastes • Biodegradable wastes containing non-biodegradable materials[4] • Materials that negatively affect the digestion process – e.g. biocides, preservatives	new feedstocks. European Waste Codes and further caveat text used to define each allowed input type. Feedstock supply agreements required.	
10	4.5	153 - 156	**Requirements on Input Materials** Non-contaminated input materials from the separate collection[5] of bio-waste[6],	Additives and seeding with sewage sludge is allowable under BCS	

[2] This table is only a synopsis – for details see Table 14 on page 151
[3] Examples – landfills, medical waste, roadside grass etc.
[4] Examples – non biodegradable sanitary products, veneers etc
[5] Article 3 (11) WFD 2008/98/EC
[6] Article 3 (4) WFD 2008/98/EC

			biodegradable[7] residues from agriculture (including manure), forestry, fishery and horticulture or previously digested/composted material. • Type & Source of input materials registered by producer • Origin of inputs of Product to be declared. Product must be marked as derived from food, agricultural, forest, garden & park, agricultural (manure or non-manure). • Reprocessing of off-spec compost/digestates or materials derived from them (e.g. leachate) is allowed, except where the material exceeded EoW heavy metals and/or organic pollutant limit(s). • Additives are allowed but only the minimum necessary to improve process performance. • Visual inspection to control inputs	Guidance.	

[7] Biodegradation level of at least 90% in less than 6 months in normal digestion.

			materials or if not possible, by sampling and storage or supply agreement.	Feedstock supply agreements required.	
11	4.6	159 2nd para.	**Requirements on Treatment Processes & Techniques** (a) Time-temperature profiles for non-ABP inputs: • Thermophylic digestion at 55 °C for 24 hours & HRT of > 20 days • Thermophylic digestion at 55 °C with pasteurization for 1 hour at 70 °C • Thermophylic digestion at 55 °C followed by composting • Mesophylic digestion at 37 – 40 °C with pasteurization for 1 hour at 70 °C • Mesophylic digestion at 37 – 40 °C with composting • Member State authority can grant authorization for alternative time-temperature profiles after demonstrating their effectiveness for hygienisation. (b) Time temperature profile for ABP inputs – in accordance with ABP Regulations.	Hygienisation is achieved by complying with the pasteurisation criteria which are based on ABPRs. These include the UK catering waste alternatives.	
12	4.7	163	**Requirements on Provision of Information to end users**	Section 14, pages 44	

			• Soil improving function – organic matter content, CaO content • Fertilising function – Nutrient content – (N, P, K, Mg), Micronutrient content (Cu & Zn), S content, Mineral N content (NH4-N, NO3-N) • General Properties – Water/dry matter content, pH, salinity	& 45 of PAS 110 defines this information. Some of these parameters are included, but none under the headings 'soil improving' or 'fertilizer function'.	
13	4.7	165	**Labelling & Information for end user** • Producer details, CB • Input materials including whether ABPs and Manures • Batch Code • Volume • Statement that EU EoW criteria have been met • End use limitations • ABP details **Information** • Instructions for safe use and handling • Reference to legal regulations governing use • Good practice in application **Traceability** • ABP regulations must be followed • Non ABP traced to first user	Includes more information than currently required .	

14	4.8	169 - 170	**Quality Assurance Procedures (Quality Management)** Must have a Quality Management System in place which complies with quality assurance standards recognized by Member States or the Community (e.g. ISO 9001). Main areas to be covered: • Control of inputs • Monitoring and recording processes • Procedures for monitoring product quality, sampling and analysis • Third party inspection • 'Plant certification for declaration and labelling of input materials, the product characteristics, the product type and the producer' • 'Information on conformity with national regulations, quality assurance and endofwaste standards and requirements of the competent authority' • Review and improvement of the QMS • Training Full details in document.	Similar to current quality management system requirements set in PAS 110.	

15	4.8	170	'The producer's quality assurance system must be audited externally by the competent authorities or by quality assurance organisations acknowledged by Member State authorities.' Options for third-party assessment and certification: **1.** European Compost Network's Quality Assurance Scheme (already operating for composting, currently being developed for AD). **2.** Existing National systems such as the Biofertiliser Certification Scheme or REAL's Compost Certification Scheme.	Biofertiliser Certification Scheme (BCS) already in place in UK.	If EU EoW criteria enter into force, BCS scheme would be realigned so that the scheme assesses and certifies conformity with those criteria. Defra and REA/ORG have pointed out to JRC that the UK producers, certification schemes and laboratories would need sufficient time to transition from current UK EoW to EU EoW criteria.
16	4.9	172	**Application of end-of-waste criteria** • 'Compost/digestate ceases to be a waste, provided all other criteria are fulfilled, when used by the producer or upon its transfer from the producer to the next holder.' • 'Use and transfer may include a period of temporary storage of stable materials of a maximum of 1 year, under proper conditions.' • 'However, if there is no final lawful use, compost/digestate will be considered		

			waste.'		
17	4.7	164	Proposed information for inclusion on the 'Statement of conformity' • Compost/digestate designation identifying the product by general type • Batch code • Quantity (to be expressed by preference in weight or otherwise in volume) • The parameters to declare through labelling • A statement that End of Waste criteria have been met • Product declaration in line with national regulations • The conformity with national quality assurance requirements • Location of AD plant • Statement of conformity with End of Waste requirements • The recommended conditions of storage • A description of the application areas for which the compost/digestate may be used and		

			• any limitations & recommendations for use		
18	4.9	172	**End of Waste Criteria proposals** Compost/digestate ceases to be waste, provided all other, end-of-waste criteria are fulfilled, when used by the producer or upon its transfer from the producer to the next holder. However, if there is no final lawful use, compost/digestate will be considered waste. Compost/digestate can be stored and traded freely as a product once it is placed on the market by the producer. The benefits of the end-of- waste criteria are made actual if compost/digestate users are not bound by waste legislation (this means, for example, that farmers or landscapers using compliant compost/digestate do not require waste permits nor do formulators of growing media that use compost/digestate as a component). Users have, however, the obligation to use the product according to purpose and to comply with the other existing legislation and standards	ADQP End of Waste Criteria a. Digestate produced using source-segregated input materials as in Appendix B of ADQP b. Meets requirements of PAS110 c. Destined for designated market sectors (not applicable in Scotland)	

			applicable to digestate. Blending/mixing with other material takes material out of this specification. This is also to prevent the attainment of testing limits by means of dilution with other materials.		