

The Waste Framework Directive (WFD) is the primary regulation in the EU for the control of waste. Each member state interprets and enforces the WFD through national regulatory bodies. In the UK these bodies are the Environment Agency (EA) in England and Wales, the Scottish Environment Protection Agency (SEPA) and the Northern Irish Environment Agency (NIEA).

The WFD defines waste as:

“any substance or object which the holder discards or intends to discard”

It is noteworthy that there is no reference to any intrinsic property of the substance or object, its usefulness or indeed potential for re-use.

Critical to complying with the WFD is defining the point at which material is fully recovered and can be considered a product. This requires end of waste (EoW) criteria.

Quality Protocol for PFA

The Quality Protocol (QP) for PFA was developed by the Waste & Resources Programme (WRAP), the EA, the NIEA and industry to achieve workable EoW criteria. The industrial collaborators were the UKQAA, the Joint Environmental Programme (JEP) and the Association of Energy Producers (AEP). To quote the document:

“Compliance with these criteria is considered sufficient to ensure that a fully recovered product may be used without undermining the effectiveness of the Waste Framework Directive and therefore without the need for waste management controls”.

The scheme covers PFA, FBA and cenospheres. Co-combustion is allowed, if the ash complies with EN 450-1. As a voluntary scheme suppliers have no legal obligation to conform to its requirements, but without the QP the EA would regard any raw material under consideration to be a waste and full regulatory requirements would be enforced, such as the need for waste transfer licences. The QP applies to designated bound applications, which for PFA are:

- Type I addition to concrete (filler or lightweight filler aggregate).
- Type II addition to concrete (cementitious component).
- Cement manufacture – e.g. kiln feed.
- Ceramic tiles and brick making.
- Paints, plastics and rubber.
- Lightweight filler for bitumen bound materials.
- Hydraulically bound mixture in pavement construction e.g. road base.

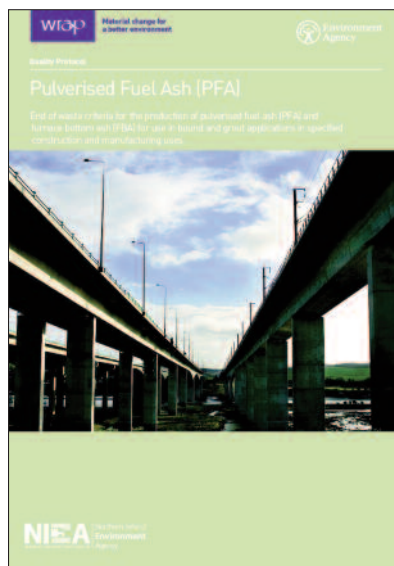
The designated bound application for FBA is as a lightweight aggregate for concrete.

Grouting is another designated application for PFA, with the approved product standard quoted as BS EN 12715, Execution of special geotechnical work, Grouting.

PFA and FBA may be processed by methods such as segregation, screening, classification or carbon reduction. Full recovery and EoW status is achieved once the following apply:

- The PFA or FBA meets an approved product standard relevant to the end use. For example EN 450-1, if the ash is for concrete. Alternatively, a technical specification agreed with the customer may be appropriate.
- If required, additional customer specifications have been achieved.
- A designated bound application has been identified.
- No further processing is required before use.
- Documented evidence is available showing compliance.

The environmental impact of the use of PFA or FBA needs to be considered. There must be no adverse effect on the sustainable use of water resources. Similarly, designated conservation areas must not be affected. Stockpiled PFA is subject to normal waste management regulations. Once fully recovered, any by-product may become subject to the REACH regulations.



The Quality Protocol for PFA published in October 2010

Note: The Quality Protocol for PFA does not apply in Scotland.

[Click here to link to the Quality Protocol for PFA](#)

Unbound Applications

Currently the Quality Protocol for PFA only relates to bound applications. Unbound uses of PFA FBA and cenospheres are covered by a Regulatory Position Statement (RPS 172) produced by the EA:

[Click here to link to Regulatory Position Statement](#)

