

The Environmental Impacts of Using Fly Ash – the UK Producers Perspective

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ABSTRACT

Fly ash or Pulverised Fuel Ash (PFA) as it is known in the UK, has been used for over 50 years for a wide range of applications. With the recent upsurge in interest in environmental matters the environmental impacts of the use of PFA has been questioned by some. This paper reviews existing knowledge and presents some recent findings of research on the environment.

The chemistry of PFA reflects the mineral origins of the coals when formed millions of years ago. The combustion process concentrates these minerals. However, most elements are held in the glassy particles that are formed in the furnace. While the trace element composition may indicate potential for environmental effects, the available leachable elements are minimal. With proper design, unbound PFA can be used as a fill material posing only negligible risk, even to sensitive aquifers.

Recently, an examination of leachates adjacent to large PFA embankments of varying ages has been carried out by Nottingham University. This project has shown no significant contaminants associated with the PFA. A recent review of radon gas emissions also reported no significant radiation risks. A generic environmental risk assessment, bringing together data from these reports, UK power stations, various environmental sources, research papers, etc also concludes there are no risks associated with the proper use of PFA as a fill material. This looked at trace elements, poly-aromatic hydrocarbons, dioxins, phenols, etc.

This paper concludes that PFA is an environmentally safe material that can be safely used in bound and unbound applications.