

The William Tracey Group

Recycling of waste material

Customer challenge

The William Tracey Group, a recycling and resource management company, supplies ash collection and processing services to the majority of Scotland's waste and biomass plants.

Currently in Scotland, the majority of this ash is sent to landfill. The William Tracey Group wanted to investigate the possibility of turning this current waste stream into a usable construction product that would have a number of commercial and product benefits.

The William Tracey Group, with the support of the Construction Scotland Innovation Centre, approached the AFRC to look at both the removal of the hazardous nature of the material and to prepare a consistent range of products for use in the construction sector.

Business impact

The AFRC's in depth knowledge of heat treatment enabled the William Tracey Group to identify suitable temperature and heat treatment duration parameters for the drying and sintering processes to produce lightweight concrete pellets from the waste ash.

The sintering trials carried out at the AFRC confirmed that the pellets will increase in strength as well as be more environmentally friendly if the quality of the ash component is refined.

This process has the potential to divert 100,000 tonnes of waste per annum from landfill by converting it into a new raw material that is an alternative aggregate product for the construction industry.

How did the AFRC help?

The project, funded by the Construction Scotland Innovation Centre, investigated different methods of heat treating ash waste material with the aim of removing contaminants to produce a high quality concrete pellet.

AFRC heat treatment experts carried out furnace trials to refine the quality of the ash component. They investigated the most suitable time and temperature that would provide a reliable and repeatable concrete product composed of waste ash, cement and water.

The concrete mix was then made into small pellets, removing any contaminants and strengthening the aggregate.

Uni-axial compression tests were also carried out on single pellets to unearth the initial mechanical properties and evaluate the effect of the various heat treatments.

"As a result of CSIC funding and the expertise within the AFRC, this successful project has allowed The William Tracey Group to take a significant step towards commercialising a new product for the construction industry. This could have a significant impact on the supply chain, creating new jobs and new markets and lead to further expansion of the business operation throughout the UK and Ireland and potentially further into mainland Europe."

Jennifer Smart, Business Relationship Manager at the Construction Scotland Innovation Centre



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