Carbon 8 - Recycling Air Pollution Control Residue

About Carbon8
The use of Accelerated Carbonation Technology for the treatment of Thermal Residues and the manufacture of a sustainable carbon negative aggregate has been developed by Carbon8 following 15 years of award winning research undertaken at Imperial College, London and The University of Greenwich.

Pioneered by leading academics in their field, Professor Colin Hills and Dr Paula Carey, the business has worldwide patents and is currently one of only a few companies in the UK to hold an Environment Agency ‘End of Waste’ agreement, classifying the finished aggregate as a ‘product’.

Following various scaled trials, the first commercial facility was built in spring 2012 at Brandon, Suffolk where we have recently invested over £1.5m building a second line to double its treatment capacity producing over 50,000 tonnes of aggregate per year. Over the next few years Carbon8, with the support of its principal investor, Grundon Waste Management Ltd, wish to build and develop a national network of facilities to become the preeminent recycler of Thermal Residues.

With the unique use of Carbon Dioxide within its treatment process, Carbon8 is ranked within the top 10 companies in the UK for permanent Carbon Capture from a commercialised process. It is also believed to be the only company in the world that produces an aggregate that is truly carbon negative winning numerous industry awards for its green credentials.

Carbon8 is a genuine ‘world’s first’, on a number of fronts and has attracted interest from both the UK Government and the international community.

Process
The aggregate manufacturing process uses a patented process – Accelerated Carbonation Technology (ACT) – where waste carbon dioxide gas is used as a resource to treat a wide range of thermal wastes.

Many thermal wastes react naturally with carbon dioxide and, if the reaction conditions are carefully controlled, this natural reaction can be accelerated, taking place in minutes rather than months or years and resulting in the formation of artificial limestone.

During the process, significant volumes of carbon dioxide are permanently captured as stable carbonates. The growth of the carbonates chemically stabilises and encapsulates contaminants reducing the pH of the system and locking up heavy metals.

In the Carbon8 manufacturing process, the carbonated material is blended with binders and fillers and then pelletised with further carbon dioxide to form a rounded aggregate (C8Agg) that has a number of applications in construction.

The resulting aggregate has captured more carbon dioxide than is used in the energy required in its manufacture resulting in the world’s first carbon negative aggregate.

The Carbon8 process has recently been recognised in a United Nations Environment Report and acknowledged as making “a demonstrable contribution to the developing European circular economy”.

Aggregate
- Aggregate is Carbon Negative. More CO₂ is permanently captured during the process than used in its manufacture
- Every thousand tonnes of C8Agg produced captures the same amount of carbon dioxide as planting 4000 trees every year
• For every tonne of C8Agg used 1.4 tonnes of natural aggregate is saved, natural material can never be replaced

• Carbon8 operate to a strict quality system, and have certification to ISO 9001, ISO14001 & OHSAS 18001. All of their products can be supplied in compliance with BS EN 13055-1:2002 Lightweight aggregates – Part 1: Lightweight aggregates for concrete, mortar and grout and BS EN 13055-2:2004 Lightweight aggregates – Part 2: Lightweight aggregates for bituminous mixtures and surface treatments and for unbound and bound applications

• All products may be CE marked

Carbon8 Facts

Every tonne of C8A aggregate captures the same amount of CO₂ as driving a car for 225 miles

Every tonne of C8A aggregate diverts 500kg of hazardous waste from landfill

Every tonne of C8A aggregate saves 1.5 tonnes of natural aggregate

Each Carbon8 Aggregates site produces over 50,000 tonnes of aggregate per year

Carbon8 Aggregates Ltd will operate a network of five sites in the UK by 2018