



Companies: Atritor Ltd, ST Equipment & Technology LLC, UK Quality Ash Association

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Event held at Atritor Ltd Headquarters, Coventry, UK

Date: 19<sup>th</sup> - 28<sup>th</sup> June 2023

**Participants:** UK Quality Ash Association (UKQAA), Atritor Ltd, ST Equipment & Technology, LLC, market leaders in the concrete production industry, power station operators, developers of land that have ash ponds, Zero Carbon Group, Mineral Products Association (MPA), and Leeds University,

## MOVERS AND SHAKERS IN THE CONCRETE INDUSTRY ATTEND ATRITOR AND STET LIVE HARVESTED ASH BENEFICIATION DEMONSTRATION EVENT

At the end of June Atritor Ltd (Atritor), a leading manufacturer of drying, milling, and deagglomeration solutions for 90 years, and ST Equipment and Technology, LLC (STET) the leading technology in carbon separation from fly ash (coal combustion residuals) came together in Coventry to provide over 50 market leaders and key stakeholders in the concrete and minerals market a live demonstration of the solution to utilise harvested fly ash from the stockpile for use in the construction industry.

### **Nigel Cooke from the UK Quality Association summed up the current position:**

“The great news for the construction sector is that the UK Government has recognised the strategic importance of Coal Derived Fly Ash (CDFA) and the role it can play in a low carbon economy. The latest edition of the National Planning Policy Framework refers to the need to safeguard these stockpiles like the one at Gale Common which has around 25 million tonnes of reserves.

This event was the first time that the STET triboelectrostatic carbon separation equipment was shipped from the USA to sit alongside the Atritor drying and deagglomeration solution, the Dryer Pulveriser, at their Pilot Plant in Coventry, UK.

The two companies hosted the event to show movers and shakers in the market how the two technologies work perfectly together. CDFA from stockpiles in the UK was dried, milled, deagglomerated, and carbon separated using STET's combustion-free process to produce CDFA to global standards, like EN450, that can be used in cement and concrete, as an alternative to fresh fly ash that is increasingly scarce.

The closure and winding down of coal-fired power stations to achieve renewable goals around the world has led to a scarcity of fresh fly ash and many players in the concrete market are forced to import supplies from overseas.

In the UK alone there are 100 million tonnes of CDFA in stockpiles and lagoons which can be processed to provide a valuable asset to the construction industry.

The event also provided a platform for the industry to discuss practical opportunities to implement the solution."

**Tom Cerullo, President of STET added:**

"Over the past three decades, STET has installed commercially successful fly ash beneficiation plants in North America, Europe, and Asia with a total installed capacity of four million tons per year. Our electrostatic separators were vital to utilities turning freshly generated fly ash into value streams and with over 25 million tons of ProAsh® and EcoTherm™ recycled into beneficial use our track record speaks for itself. The reclamation of fly ash from ponds and landfills represents the future of our industry, and I am extremely pleased with the collaboration with Atritor. It is clear that our technologies together create a robust solution for customers seeking to convert their previously disposed fly ash into valuable streams of construction material and alternative fuel."

The live event delivered outstanding results even with variable feed materials from across the UK.

### **John Wilkinson Managing Director at Atritor, reflected on the event:**

“Atritor has invested heavily in research, and development with all the key players in the cement industry, and now we offer a viable process for harvested CDFA. In the UK that will unlock the potential revenue and profit from 100 million tonnes of CDFA, creating value from what is, a readily available local product.

I’m pleased to see key players in the market have come to process their fly ash at this event, as that demonstrates to me that there is a huge commitment to becoming self-sufficient for fly ash and to reducing the carbon related to cement production.

Atritor and STET have compiled a film of the event so that everyone associated with the market can witness this live solution for themselves.”

Link available soon....

##ENDS##

### **Images available**

1. Nigel Cooke from the UKQAA standing on an ash pile at Gale Common which has 25 million tonnes of CDFA for harvesting.
2. Aerial view of Gale Common showing an example of the vast assets of CDFA available to the UK cement and concrete industry.
3. Tom Cerullo CEO at ST Equipment LLC and Scott Coley Project Sales Manager and Director at Atritor, shaking hands.
4. CDFA image through the stages of the process – from feed material to dried and deagglomerated to carbon separated to meet EN450.
5. The Atritor Dryer Pulveriser in their Pilot Plant at Coventry is used to dry and deagglomerate CDFA from single-use deposits such as lagoons and stockpiles.
6. The ST Equipment Ltd carbon separation process containerised Pilot Plant shipped to the UK from the USA for the Ash Demonstration event.

## **Atritor Background**

Atritor Ltd, an independently owned UK manufacturer uses the knowledge gained over 90 years to deliver bespoke drying, deagglomerating, and milling solutions for industry. We design, manufacture, and commission processes that take raw materials and manufacture by-products turning them into value-added products.

We have a database of over five hundred categories of material and thousands of test results. Accumulated over seventy-five years they provide detailed insight into the characteristics and performance of materials.

Whatever the material from minerals and chemicals to food we have the technical expertise to help.

Atritor has an in-house design team, industrial Pilot Plant, foundry, and manufacturing facility in Coventry in the UK, and typically export 80% of their product to support customer across all 6 continents across the world.

See more at [www.atritor.com](http://www.atritor.com) including the key members of the team and the company's history since 1920.

## **STET Background**

ST Equipment & Technology LLC's (STET) predecessor, Separation Technologies (ST) was founded in 1989 to commercialize a proprietary electrostatic separation process invented by an MIT scientist.

STET's mission is to be a global leader in sustainable, environmentally-sound, cost-effective, and reliable solutions that enable our customers to extract valuable products from feed and waste streams, in a manner that is water-free, emissions-free, and low in carbon footprint.

Today, STET has delivered and commissioned separator units for customers in North America, Europe, and Asia, with more than four million tons per year of installed processing capacity. STET has over 100 machine years of operation experience processing a wide variety of fine powders. STET has a dedicated team of scientists, engineers, application experts, and business development professionals focused on solving separation challenges for our customers

The STET technology is the most widely implemented loss on ignition (LOI) reduction technology for fly ash in the world and the only process that does not

consume energy (heat) to burn off residual carbon, thereby maximizing CO<sub>2</sub> savings achieved by replacing cement in concrete. LOI testing is a generally accepted method for estimating the unburned carbon content of fly ash.

ST and STET are subsidiaries of Titan America, LLC ([www.titanamerica.com](http://www.titanamerica.com)), and its family of companies are leading heavy building materials producers in the Eastern United States. Titan America is headquartered in Norfolk, VA and its subsidiary companies produce cement, aggregates, ready-mixed concrete, concrete block, and beneficiated fly ash. Titan America is a member of TITAN Cement Group, an international cement and building materials producer. The Group employs about 5,500 people and is present in more than 15 countries. Throughout its 120-year history, it has aspired to serve the needs of society, while contributing to sustainable growth with responsibility and integrity. For more information, visit [www.steqtech.com](http://www.steqtech.com) and [www.titan-cement.com](http://www.titan-cement.com).

## THE 101 OF THE HUGE HARVESTED COAL DERIVED FLY ASH (CDFA) OPPORTUNITY

1. CDFA is produced as a by-product of coal-burning power stations. With the closure of these generation sites due to environmental legislation fresh CDFA is very scarce in the UK and has to be imported from across the world.
2. The UK has 100 million tonnes of CDFA available buried in single-use deposits such as lagoons and stockpiles. This is recognised by the UK Government as a valuable asset.
3. Cementitious use of CDFA was around 150Kt in 2021 (source UKQAA),
4. The reserves of CDFA available for harvesting can provide a source of CDFA for over 30 years of demand.
5. CDFA use in cement is from 25% to 40T depending on the application,
6. CDFA is commonly used as a structural fill for road construction and can be used to make bricks, ceramic tiles, plaster, Portland cement, and ready-mix cement. Other building materials that may contain CDFA include hot mix asphalt, grout fill, wallboard, concrete pipes, and concrete bricks.

7. CDFA offers many benefits for use in concrete such as durability, low heat in mass pours, and pumpability.
8. CDFA has to meet regulatory standards EN450 (in Europe) to be included in cement and concrete.
9. CDFA is dried, and deagglomerated and the carbon is separated to meet this standard.
10. This standard determines the moisture level, particle size, and carbon content for CDFA.
11. Every tonne of processed stockpiled CDFA used in cement would result in a saving of 760kg CO<sup>2</sup> and 1.6 tonnes of raw material in the form of limestone and shale.
12. Atritor and ST Equipment joined forces to show the process in a live demonstration for the movers and shakers in the industry – as they believe seeing is believing.
13. Everything is in place to harness this huge CDFA asset for UK concrete and cement production.