

# MEDIA RELEASE

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## **Boral Resources Offers Sintered Light Weight Aggregate Production Technology**

August 30, 2018 – Boral Resources has secured commercialization rights for the United States for a technology to manufacture ceramic light weight aggregate from high carbon ash. The resulting aggregate can be used in a variety of construction applications.

High carbon ash generated from current coal-fueled electricity production, or recovered from landfills or ponds, can be used as feed material to manufacture the aggregate. Thus, in addition to producing a marketable product, the technology can help reduce or avoid costs associated with the transportation and storage of coal ash in a landfill or surface impoundment.

The technology, which has already been successfully deployed in Europe, utilizes a proprietary dryer and a high-temperature/high-efficiency rotary kiln to convert the raw materials, typically fly ash, into sintered spherical pellets. The sintering operation is autogenous as it does not require external fuel aside from remaining coal in feed material. The excess heat production capacity may also be converted into hot water or electricity and sold to generate revenue.

The production facility is automated, can be overseen by as few as four people, and allows for setup as a separate stand-alone installation to process raw material harvested from a pond/landfill or integrated installation to be incorporated into a power plant for processing production ash and providing heat recovery.

"This technology offers an opportunity to utilize both high- and lower-quality fly ash resources in the production of a high-value construction material," said Rafic Minkara, Ph.D., P.E., Vice President, Technology, Boral CM Services. " It is ideal for utilizing ash harvested from disposal impoundments that are being closed in response to environmental regulations."

The lightweight aggregate that results from the process is a ceramic, chemically neutral product that, owing to its physical properties, has potentially wider application than natural aggregates. Its advantages are in its low weight and durability having a bulk density ranging from 550 to 720 kg/m<sup>3</sup>, (35- 45 lb/ft<sup>3</sup>). It is useful in applications ranging from concrete manufacturing, including precast products road construction and building applications.



The material possesses additional characteristics that further enhance its marketability, including:

- High strength-to-weight ratio
- Resistance to fungi, mildew, rodents, and insects
- Freeze-thaw and fire resistance
- Heat and sound insulation
- Non-degradability/reusability

Since 2015, a full-scale production plant in Poland has used coal ash from a utility landfill as feed material to produce approximately 50,000 metric tons per year of lightweight aggregates. The production is sold in Poland and exported for high performance concrete applications such as high rise buildings.

**About Boral Resources: Servicing 135 locations in 45 states, Boral Resources is the nation's largest manager and marketer of coal combustion products. The company operates an extensive distribution network for fly ash and related products, as well as provides site services to power plants. Boral Resources also offers an array of proprietary technologies for improving ash quality and availability.**

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