

To all SACAA members

May I start off by wishing all SACAA members everything of the best for 2017. Given the current economic climate and low growth predicted for our country it will bring along its own challenges. But any challenge brings along the opportunity to think out of the box and this edition highlights some examples.

The research to produce methanol from CO₂ could provide unique opportunities especially considering the possibilities of oxyfuel combustion. Similarly the production of liquid fertiliser from food waste is the product of using the basics of chemistry to think outside the box.

As far as coal ash is concerned, several key international events are scheduled, all of which will provide the opportunity to gather new knowledge and learn about novel applications.

Carbon tax is always a hot topic and a discussion on how it can reduce South Africa's emissions provides food for thought.

This edition ends on a sobering note: the necessity to be aware of the danger of fires. Having experienced so many fires in and around Somerset West made me aware of the dangers and the necessity to be prepared. The last item brings home the aspect of safety by showing how the smallest animals prepare for danger.

Looking forward to receiving contributions, feedback, comments and proposals from members.

Richard

Richard Kruger, Past President: SACAA

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### ➤ **Design of a 'Clean Coal' oxyfuel combustion pilot plant**

A group of organisations, led by the Southwest Research Institute (SWRI; San Antonio, Texas; [www.swri.org](http://www.swri.org)) has begun a project to design a power-generation pilot plant featuring flameless, pressurised oxyfuel combustion technology that enables the capture of 100% of the CO<sub>2</sub> emissions from the coal fuel and is more efficient than conventional coal-power generation. The project objective is to generate a detailed design, plus specifications, costs and a construction schedule, for a 10MW power plant based on oxyfuel combustion technology, which was demonstrated previously in Italy. [http://www.chemengonline.com/design-project-clean-coal-oxyfuel-combustion-pilot-plant/?hq\\_e=el&hq\\_m=3316003&hq\\_l=2&hq\\_v=e7e76d958a](http://www.chemengonline.com/design-project-clean-coal-oxyfuel-combustion-pilot-plant/?hq_e=el&hq_m=3316003&hq_l=2&hq_v=e7e76d958a)

### ➤ **A German research project aims to make methanol from biomass or CO<sub>2</sub>**

The Karlsruhe Institute of Technology (KIT; Germany; [www.kit.edu](http://www.kit.edu)) is cooperating with research institutions and industry partners to develop a novel process for the synthesis of methanol, either without the use of fossil resources or by reusing CO<sub>2</sub> from undesired by-product streams. As part of the so-called OptiMeOH project, theoretical and experimental studies will focus on energy-efficient biogas production by high-pressure (30 bars or more) fermentation of biomass. [http://www.chemengonline.com/german-research-project-aims-makemethanol-biomass-co2/?hq\\_e=el&hq\\_m=3316003&hq\\_l=8&hq\\_v=e7e76d958a](http://www.chemengonline.com/german-research-project-aims-makemethanol-biomass-co2/?hq_e=el&hq_m=3316003&hq_l=8&hq_v=e7e76d958a)

➤ **Carbon tax will help lower South Africa's emissions**

Mining Weekly reported that a recently published analysis of South Africa's proposed carbon tax suggests that the intervention could have a "significant impact in reducing the country's emissions".  
[http://www.miningweekly.com/article/carbon-tax-will-help-lower-south-africas-emissions-study-shows-2016-11-10/rep\\_id:3650](http://www.miningweekly.com/article/carbon-tax-will-help-lower-south-africas-emissions-study-shows-2016-11-10/rep_id:3650)

➤ **International Conferences**

- **EuroCoalAsh2017** takes place in Brno, Czech Republic from 6-8 February 2017. Topics include a review of coal-fired energy in Europe, agricultural applications, novel uses, assessing environmental impact and using wet ash for concrete  
<http://www.fch.vut.cz/eca2017/>
- **Fly Ash Utilisation 2017 Conference & EXPO**, 27 - 28 February 2017, New Delhi, India. Recent developments in coal ash and desulphurisation products as well as coal ash production, utilisation, regulation and research will be addressed.  
<http://flyash.missionenergy.org/fau2017.pdf>
- **AshTradeEurope 2017**, 6 - 7 April 2017, Tallin, Estonia. It will focus on the market strategy for fly ash, logistics regulations, transport costs, technical challenges and opportunities, innovation and environmental efforts in the coal combustion by-products sector.  
<http://www.gmiforum.com/ashtrade?view=event&id=54&catid=9>
- **World of Coal Ash 2017 (WOCA)**, 8 - 11 May 2017, Lexington, Kentucky, USA. WOCA is an international conference organised by the American Coal Ash Association (ACAA) and the University of Kentucky, Center for Applied Energy Research (CAER). This premier event addresses the science, research, applications and sustainability of coal ash utilisation. A wide-range of coal combustion products as well as gasification residues will be discussed.  
<https://www.google.co.za/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=Woca+2017>
- **Coal Ash Asia**, 21 - 24 July 2017, Baotou, Inner Mongolia. This year's topics will focus on high-value utilisation, geopolymers, aluminium extraction, scrubber materials, cement and concrete.  
<http://www.asiancoalash.org/>
- **10th ACI/RILEM**, 2 - 4 October 2017, Montreal, Canada. International Conference on cementitious materials and alternative binders for sustainable concrete. This was formerly known as the **CANMET/ACI** International Conference on Fly Ash, Silica Fume, Slag, Natural Pozzolans and Alternative Supplementary Cementitious Materials in Concrete.

The aim of the conference is to highlight research of important advances in the field of alternative and sustainable binders and supplementary cementitious materials. Original papers on all aspects of pozzolans, mineral admixtures, standard and alternative supplementary cementitious materials are invited to be presented at the conference and be published in the proceedings.

<http://iccm2017.evenement.usherbrooke.ca/#/>

➤ **This process converts organic food waste to liquid fertiliser**

Large supermarkets routinely waste 500 lbs of food daily from past-due produce, deli and meat scraps and other sources. A new process developed by California Safe Soil (CSS; McClellan, California; [www.calsafesoil.com](http://www.calsafesoil.com)) converts the nutrient-rich waste food into a liquid fertiliser for farmers.

After a series of grinding steps, the waste food enters a ribbon-blender digester, where enzymes are added to break down proteins, carbohydrates and fats in the organic waste into amino acids, simple sugars and fatty acids. The mixture then undergoes mechanical emulsification and pasteurisation processes. The liquid product, containing oil- and water-based nutrients, is stabilised with phosphoric acid, and can be used to fertilise root systems of farm crops. The solid portion of the organic waste is used in pig feed.

“The liquid fertiliser, known as Harvest-to-Harvest (H2H), adds organic matter to the root zone of crops and stimulates the growth of beneficial soil microbes, which generates additional root growth. Plants take up more water and fertiliser, and increase flowering and fruiting,” explains CSS founder Dan Morash. “It also reduces the need for nitrate fertilisers on farms, which reduces farm runoff and algae blooms in nearby bodies of water,” Morash says.

Food waste is collected from supermarkets in insulated totes and buggies and is processed locally, because the CSS process generates no waste streams or nuisance odors, Morash points out. Liquid fertiliser has advantages over solid compost, because it can be dripped into the root systems using existing irrigation systems, rather than staying on the soil surface, he adds.

By Scott Jenkins | January 6, 2017.

[http://www.chemengonline.com/this-process-converts-organic-food-waste-to-liquid-fertilizer-2/?hq\\_e=el&hq\\_m=3335744&hq\\_l=7&hq\\_v=e7e76d958a](http://www.chemengonline.com/this-process-converts-organic-food-waste-to-liquid-fertilizer-2/?hq_e=el&hq_m=3335744&hq_l=7&hq_v=e7e76d958a)

### ➤ **Titan America achieves industry’s first zero waste certification**

Titan America’s Pennsuco Complex, encompassing cement, aggregate, ready mixed and concrete block production, has been certified as a Gold Level Zero Waste Facility from the U.S. Zero Waste Business Council, Corono Del Mar, California.

Certification hinged on the complex diverting more than 90 percent of waste from landfills for a minimum of 12 consecutive months, compelling staff to reduce, reuse, recycle or compost otherwise discarded materials. It further required implementing sustainable strategies for resource and waste management, and culminated with an extensive on-site audit by Zero Waste Council members.

“The certification is a remarkable accomplishment and consistent with Titan America’s commitment to striving for best-in-class sustainability practices,” says Florida Business Unit President Randy Dunlap. The Zero Waste certification follows recognition of Pennsuco Cement plant sustainability and energy efficiency initiatives by the Wildlife Habitat Council and U.S. Environmental Protection Agency.

Initiating the Zero Waste effort was Pennsuco Environmental Engineer Audrey Fulton, who credits employees and their environmental mindset for the outcome. “[The] process took us to a new level,” she notes. “It inspired us to discover new and innovative opportunities for recycling and reuse. Rather than automatically sending things to the landfill, each waste stream is now an opportunity to achieve highest and best use.”

*Concrete News, January 2017*

<http://www.concreteproducts.com/news/10199-titan-florida-flagship-logs-industry-s-first-zero-waste-council-certification.html#.WIDv2IN97IV>

### ➤ **Be prepared**

A lesson from a small animal <http://homehabitat.travelers.com/#fireSafety>