

### FAREWELL

We are saying goodbye to our outgoing chairperson, David Power. Involved with Coaltech almost from inception, David represented Anglo American and then Thungela Operations. Initially he was a member of the coal processing steering committee before becoming its chairperson.



In 2013 David joined the Coaltech Board. From 2017, save a 18-month period in 2020/21, he has been its chairperson. David has brought a wealth of knowledge to Coaltech, from a long career in coal and base metal mining and his expertise will be sorely missed. On behalf of the Board, I thank David for his contributions to Coaltech and the pleasant way in which we have worked together. I wish him well in retirement and hope that he will remain involved in Coaltech and the wider mining community.

### Congratulations to Mxolisi Mokwena



Congratulations to Mxolisi Mokwena on receiving an Award from Mine Ventilation Society of South Africa.

[Click here for more](#)

Awards 2022: South African Colliery Managers Association (SACMA) Prize

Q3 Journal 2022: Coaltech project: **More effective use of disposable dust masks.**

[Click here for article](#)

### Introducing Phillip Mulder



Please welcome Phillip Mulder from Seriti Coal, who will take over as chairperson for the next two years, assisted by Veli Sibiya of Sasol Mining in the position of vice chairperson. I trust that under the leadership of Phillip Mulder and Veli Sibiya, Coaltech will go from strength to strength and will continue to serve the coal mining and energy industries.

## 2023/4 Coaltech is soliciting New Research Proposals

The Coaltech Research Association NPC (non-profit company) is a voluntary collaborative organisation that addresses the research needs of the Coal Industry of South Africa. Its main purpose is the development of technology and application of research findings that will enable the South African Coal Industry to remain competitive, sustainable and safe.

**Research Focus Areas**

- Mining, Asset Management and Geoscience
- Coal Processing
- Surface Environment

[Click here to find out more](#)

For details: Contact **082 301 0419** [www.coaltech.co.za](http://www.coaltech.co.za)

**Deadline extension** from 4 August to **16 August 2023**

**Colloquium 2024** 31 May

**Save the Date**

Attendance is **FREE**

Exhibitor Opportunities

For more information contact **Carmen Bergman-Ally** [cbergman@coaltech.co.za](mailto:cbergman@coaltech.co.za) 011 358 0011 Cell: 082 301 0419

### Mining

#### The management of hot holes in opencast coal mines

The increase in coal demand for power generation has led to more mines having to re-work old underground mines, which increases the likelihood of intersecting hot holes. Hot holes are a result of drilling into reactive ground that contains high sulphur concentrations and drilling into old underground coal workings. Exposure of reactive ground to oxygen through drilled holes led to in exothermic reactions that result in temperature increases and smoke/fumes generation in the holes. Charging of hot holes poses a risk of premature detonation of explosives in the drill hole, which can result in injury or harm to people and property damage.

There has been a number of incidents where hot holes that were primed but not charged, detonated prematurely and caused injury to personnel. The most important factors to consider when dealing with hot holes remain the type of explosives used as well as the practices and procedures followed while charging and blasting hot holes. Currently a hot hole can only be detected after drilling. The ability to detect potential hot holes in South African coal mines prior to drilling, and enforce control measures as general best practice is needed.

[Learn more here](#)

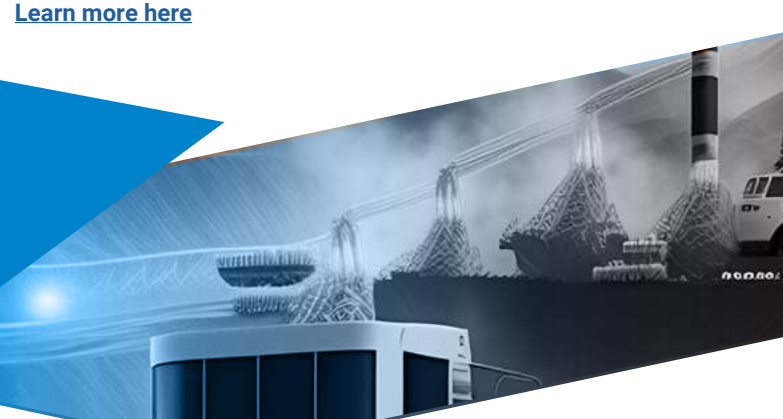


### Processing

#### Hydrothermal Treatment

The aim of this research is to produce advanced carbonaceous material from South African discard coal using hydrothermal carbonization technique. Hydrothermal carbonization process uses discard coal to produce solid bio-coal. The solid HTC product known as hydrochar could be converted also into high-value products like activated carbon. The principal purpose of this thesis is to study the conversion of discard coal, widely available in South Africa, into hydrochar and then activated carbon. The hydrothermally carbonized waste coal will be prepared at different reaction severity and with addition of selected activation compounds (salts, acid etc.). The hydrothermally carbonized waste coal will be activated by chemical activation. The potential hydrogen adsorption i.e. the hydrogen storage capacity of the activated carbons and selected wastewater treatment streams will be assessed for HTC-activated carbon namely the pretreatment of the brine waste from the eMalahleni Mine Water RO Reclamation Plant and the removal of organic micro-pollutants (OMPs) from the Johannesburg North wastewater treatment plant. Furthermore, the project will investigate disposal avenues of the used hydrochar to close the cycle i.e. bricks manufacturing.

[Learn more here](#)



### Environment

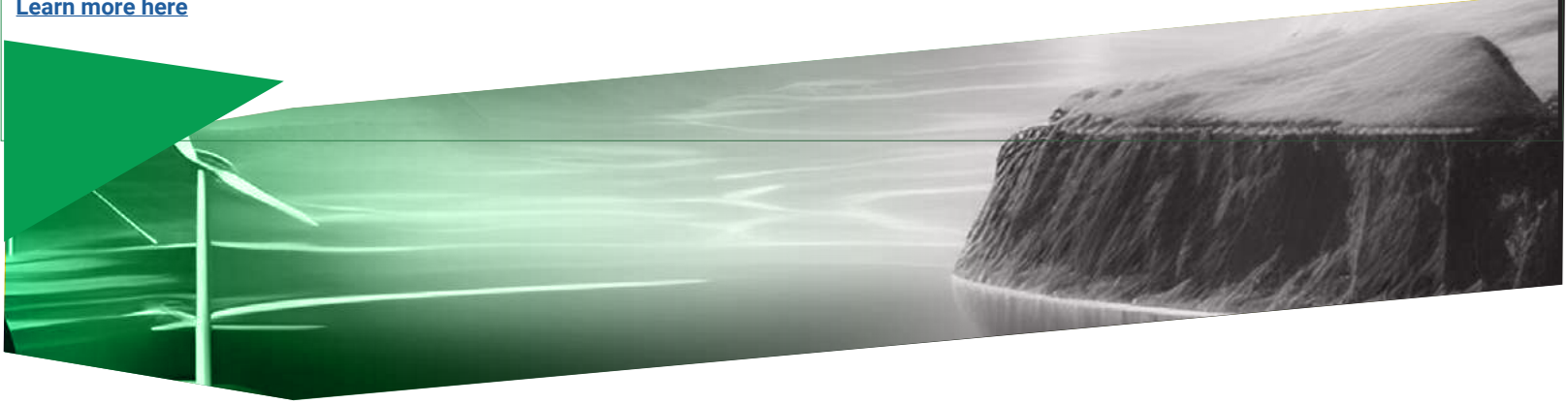
#### Fabricated Soils

A significant part of the environmental damage caused by coal mining derives from the waste deposits, including blemishes in the landscape and the impact of acid rock drainage (ARD) generation formed from pyrite and other sulphidic minerals, department of heavy metals and loss of water. Hence reducing the volume of these waste deposits contributes to the decrease the total environmental impact. Further to alleviation of this negative impact, management of coal waste offers potential for retrieval of coal values as well as re-purposing of associated materials to other uses consistent with the circular economy. Examples of re-purposing include use in construction material and in fabricated soils. In order to mitigate the environmental impact caused by final disposal, coal waste management is necessary through its integration into the landscape by the establishment of a vegetative cover. In this project, the production of a soil from South African coal fines and ultrafine wastes will be demonstrated on a larger scale, and evaluated. In the first instance, this soil could be used in restoration and rehabilitation itself, avoiding the need for extraction of soil from borrow pits, a common practice in restoration activities. In addition the potential for separation of sulfides from processing wastes and its application as an effective means to reduce or even remove dump deposits related risks will be examined. The use of the desulfurized tailings fraction in fabricated soils has already been successfully shown. Using mixtures comprising desulfurized coal waste, amended with other industrial wastes, satisfactory conditions were provided to promote plant development.

This project focuses first and foremost on the development of sustainable technologies with respect to coal waste final disposal challenges by considering innovative and long term solutions for the re-purposing of waste material from coal processing, thereby addressing both long-term risk removal and value recovery. Using this sustainable development approach, the principle of waste minimisation is used in conjunction with industrial ecology for the re-purposing of waste materials from conventional mineral processing operations. Apart from improving resource efficiency and providing opportunities for coal mines to enhance their profitability through product diversification and for local communities to have access to increasing opportunities for livelihoods, the proposed approach also has a number of environmental benefits. These include:

- A reduction in the net volume of waste requiring disposal, thereby reducing land usage and preventing the ongoing generation of leachates containing polluting components, particularly acid rock drainage.
- A source of 'fabricated topsoil' for the rehabilitation of mine sites and mine waste deposits and their re-vegetation, with potential for further use.
- A human capital, development for the environmental processing, sustainability science and technology sectors through the training of students at the Honours, Masters, doctoral and postdoctoral levels.

[Learn more here](#)



### Our new board

<b>PHILLIP MULDER</b> SERITI CHAIRPERSON	<b>HENK LODEWIJKS</b> COALTECH COALTECH CEO	<b>DAN MASHIGO</b> ESKOM
<b>MARIUS SMITH</b> GLENCORE	<b>VELI SIBIYA</b> SASOL	<b>LONDOLANI RAMPFUMEDZI</b> SACMA REP
<b>SIETSE VAN DER WOUDE</b> MINERALS COUNCIL SA	<b>JACOB BREYTENBACH</b> THUNGELA	
<b>DR SETOBANE MANGENA</b> PROCESSING CHAIRPERSON SASOL	<b>GAVIN SILVER</b> MINING CHAIRPERSON SERITI	<b>RITVA MUHLBAUER</b> ENVIRONMENTAL CHAIRPERSON THUNGELA

### PROPOSED MEETING DATES FOR COALTECH 2024

MONTH	COALTECH BOARD	MINING	PROCESSING	ENVIRONMENT
JAN	Friday 26@10:00	Tuesday 16@10:00		
FEB	-		Wednesday 14@10:00	Thursday 22@10:00
MARCH		Tuesday 05@10:00		
APRIL	Friday 05@10:00		Wednesday 10@10:00	Thursday 25@10:00
MAY	Friday 24 @10:00	Tuesday 07@10:00		-
<b>COLLOQUIUM – 31 MAY 2024</b>				
JUNE		-	Wednesday 05@10:00	Thursday 20@10:00
JULY	Friday 26@10:00 AGM	Tuesday 09@10:00		
AUG	-	-	Wednesday 07@10:00 Projects Final	Thursday 22@10:00 Projects Final
SEP	Friday 27@10:00	Tuesday 10@10:00 Projects Final	-	-
OCT			Wednesday 09@ 10:00	Thursday 24@10:00
NOV	Friday 29@10:00 Budget Approval	Tuesday 05@10:00	Wednesday 13@10:00	Thursday 21@10:00
DEC				

**PHYSICAL ADDRESS**

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