

# MEMBRANE FOR TREATING ACID MINE DRAINAGE

## Key Benefits:

- Hydrophilic functional groups to facilitate water permeation.
- Improved fouling properties.
- Can operate at high temperature
- Cheap, reproducible and can handle Acidic PH of AMD unlike organic and inorganic polymer membranes
- Metals from the process can be reclaimed for other uses

The technology is a membrane for treating acid mine drainage that is reproducible and can handle large discharges of acid mine drainage. It is suitable for implementation in a filtration cartridge set up that allows for reclamation of metals which can then be recycled and used for other applications. It's made up of polyethersulfone and nano hydroxy-solidate particles with hydrophilic functional groups which facilitate the permeation of water molecules whilst at the same time preventing the permeation of metal and metal ions.



## PRINCIPAL RESEARCHER



**Prof MICHAEL DARAMOLA (PhD)**

Associate Professor, School of Chemical and Metallurgical Engineering

## STAGE OF DEVELOPMENT

Membrane samples have been produced at lab scale and characterized for filtration properties. It displayed 70% selectivity.

## APPLICATIONS

Treatment of acid mine drainage from the mining industry.

## PARTNERSHIP OPPORTUNITY

A licensee or potential development partner are being sought to undertake technology evaluation and upscaling for production

## CONTACT

TUMI NGQONDO  
Innovation Support Manager  
Email: [tumi.ngqondo@wits.ac.za](mailto:tumi.ngqondo@wits.ac.za)  
Tel: +27 11 717 9260

His research interest lie in four (4) main areas namely: membrane technology and catalysis (synthesis, characterization and applications); renewable energy, bio-based economy and sustainable environment; nanotechnology and composite materials; and process modelling and simulation.

He has contributed substantially to the advancement of chemical engineering and applied sciences through peer-reviewed publications (book/book chapters, journal articles, conferences). He is a member of the Editorial Board of Modern Research in Catalysis (MRC), an open access peer-reviewed journal that publishes cutting-edge research results in catalysis and reactions engineering and a seasoned reviewer for several reputable scientific journals and the National Research Foundation of South Africa (NRF).