

The design and characterisation of an electrohydrodynamic atomizer for thermal desalination processes, by Mr. Anselim M. Mwangi, MSc Student, Friday 9th January 2015

Mon, 2015-01-19 13:36

Date and time:

Fri, 2015-01-09 13:33

Location / Venue:

Institute of Nuclear Science & Technology, Conference Room



Water is considered as the most important chemical substance in the world. Access to sufficient quantities of safe and fresh water for drinking, domestic use, agriculture and for commercial as well as industrial applications is critical to health, well-being and the opportunity to achieve human and economic development.

Worldwide water scarcity is pressing the world to come up with innovative ways of sourcing for water. Seawater desalination is rapidly emerging as one of the major sources of fresh water. Multi effect distillation, being one of the promising technologies, needs to be improved to increase its efficiency. This research aims to optimise the efficiency of multi effect distillation systems by designing and implementing a multinozzle atomizer while implementing electrohydrodynamic atomization technique.

The multinozzle atomizer uses electrohydrodynamic atomization (EHDA), commonly known as electrospray, to provide a better dispersion which will eventually increase the evaporation ratio of the liquid. The research work involved designing of the multinozzle atomizer, doing the

computational models to check the process parameters, simulating of the complete design and characterising the working conditions of the device.

The sprayed water was thereafter analysed using is a nuclear technique. This work will provide vital information of the elements present after electro spray process has occurred thus give insights in the implementation of electro spray in desalination hybrid systems.