Abstract Submitted
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Design and Manufacturing of Desalination System Powered by Solar Energy Using CDI Technique[1] MOHAMMAD SAJJAD ROSTAMI, MORTEZA KHASHEHCHI, University of Tehran, EHSAN PIPELZADEH, University of Queensland — Capacitive deionization (CDI) is an emerging energy efficient, low pressure and low capital intensive desalination process where ions are separated by a pure electrostatic force imposed by a small bias potential as low as 1 V That funded by an external Renewable (Solar) power supply to materials with high specific surface area. The main objective of this configuration is to separate the cation and anions on oppositely charged electrodes. One of the key parameters for commercial realization of CDI is the salt adsorption capacity of the electrodes. State-of-the-art electrode materials are based on porous activated carbon particles or carbon aerogels. Various electrode materials have been developed in the past, which have suffered from instability and lack of performance. Preliminary experimental results using carbon black, graphite powder, graphene\ graphite\ PTFE (Active\ Conductive\ binder) show that the graphene reduced via urea method is a suitable method to develop CDI electrode materials. Although some progress has been made, production of efficient and stable carbon based electrode materials for large scale desalination has not been fully realized.

[1]A new desalination technique using capacitive deionization

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