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Commentary

Solar Heated Membrane Desalination Plant

Chun Wang*

Department of Physical Science and Technology, University of Tiangong, Tianjin, China

ABOUT THE STUDY

Membrane Desalination (MD) is a method that takes away mineral components from saline water. Generally, Desalination refers to the removal of salts and minerals from a target substance, as in soil Desalination, which is a difficulty for agriculture. Saltwater particularly sea water is desalinated to produce water suitable for human consumption. The by-product of the Desalination method is brine. Membrane Desalination (MD) is mainly used on many seagoing ships and submarines. The modern interest in membrane desalination is focused on cost-effective and provision of fresh water for human use. Along with recycled wastewater, Desalination one of the few rainfall-independent water resources. Desalination is the technique of removing salts or other minerals and contaminants from seawater and wastewater effluent and it is an increasingly common technique to obtain fresh water for human consumption and for industrial utilization. It uses Reverse Osmosis (RO) technology to separate water molecules from seawater. Water from the ocean is forced through thousands of tightly-wrapped, semipermeable membranes under high pressure. The membranes allow the smaller water molecules to pass through, leaving salt and different impurities behind.

Membrane Desalination (MD) has the potential to increase fossil fuel dependence, increase greenhouse gas emissions, and exacerbate climate change if renewable energy sources are not used for freshwater production. The problem is that the Desalination of water requires lots of energy. Salt dissolves easily in water and forming strong chemical bonds, those bonds are difficult to break. Energy and the technology to desalinate water are both expensive, and which means desalinating water can be pretty costly. The three main, large-scale thermal techniques are Multistage Flash Desalination (MFD), Multi-Effect Desalination (MED), and Vapor Compression Desalination (VCD). Another thermal technique, solar distillation, is generally used for very small manufacturing rates. The Reverse osmosis is a highly efficient technique that can help desalinate saline water. It is a technique that is widely used at homes too. Water purifiers have Reverse Osmosis (RO) technology that can eliminate mineral contaminates up to 99%.

Seawater Desalination is the most expensive sources of fresh water. The general costs of Desalination, which includes the costs of planning, permitting, and concentrate management, are high, both in absolute terms and in comparison with the costs of other alternatives. The drawback of Desalination is causing many humans to assume twice before starting Desalination projects. Ocean Populations, Health Concerns, and Energy Use.

In Pre-treatment chemical compounds used for brackish and seawater Desalination consist of pH adjusters and flocculants, deposit control agents, biocides decreasing chemical compounds. In post-treatment, chemical compounds include chlorine and compounds for demineralization. It is currently expensive compared to most alternative sources of water, and only a very small fraction of total human use is satisfied by Desalination. It is economically practical for high-valued uses which include household and industrial uses in arid regions. However, there is growth in Desalination for agricultural use, and highly populated regions which include California. Desalination is the method of removing salt from seawater, making it drinkable. This is done either by boiling the water and collecting the thermal or by pushing it through special membrane filters.

Correspondence to: Chun Wang, Department of Physical Science and Technology, University of Tiangong, Tianjin, China, Email: Chun.Wang@gmail.com

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