



Job description

Abschlussarbeit/Praktikum

R&D Membrane Distillation - Wetting

Motivation SolarSpring GmbH is active worldwide in the development of modules and systems for membrane distillation (MD). The application of MD in seawater desalination has been well researched in recent years within several publicly funded projects and tested in the field through pilot systems. Now the potential of membrane distillation is to be considered and evaluated for other areas of application to be able to respond to the new requirements with adapted module concepts.

Tasks Membrane distillation is a hybrid process between membrane processes and evaporation processes. A hydrophobic micro-porous membrane acts as a boundary through which only volatile gaseous substances can pass. As with the evaporator processes that have been used for many years, there are different methods of heat recovery within the system.

In many industrial processes, considerable amounts of wastewater are produced that contain high concentrations of inert salts. The discharge of high salt loads into surface waters represents a great burden for the ecosystem, especially if they are used for drinking water production. Furthermore, to protect our resources, it is important to close material and energy cycles in industry in order to increase the efficiency of processes. Against this background, there is a need for action from the industry's point of view to research and develop new, environmentally friendly, and economically viable processes for the purification, desalination and utilisation of salts or purified concentrated process solutions. One possible solution is concentration with membrane distillation. Since this application brings new requirements for the technology, a series of basic investigations are necessary, which primarily relate to increasing the process efficiency and longevity. Membrane wetting is a challenge for longevity of the membrane as the hydrophobicity is lost over a period after contact with salt solutions especially if vacuum is used to increase the throughput. Influence of various parameters on the wetting behaviour will be one of the main tasks. The research will also include testing the wetting behaviour of new membranes, backings as well as spacers.

The work is designed for a duration of 6 months. Practical knowledge in handling tools and an independent and self-reliant way of working are absolute basic requirements for this task. Chemical / Process / Environmental engineers are preferred.

SolarSpring GmbH
Christaweg 40
79114 Freiburg
www.solarspring.de

Ansprechpartner
Kirtiraj Chavan
Tel.: +49 (0)761 610 508 4
kirtiraj.chavan@solarspring.de