CaribDA
Caribbean Desalination Association

CaribDA News

Volume 2, Issue 4 Fall Issue 2012

Message From The President

By: Manuel Pereira, Aqualectra Production

Dear CaribDA Members and Friends,

As you have noticed CaribDA has been very active this year with our Conference, Training and Election for a new Board, new website etc.

First of all I like to thank all the members that used their right in the voting process, we had a record of votes of 43%. As the new re-elected President for the period 2012-2014, I like to thank you all for the trust. It's a challenge that I accept with honors. We will continue with the same love, spirit and enthusiasm to promote the CaribDA organization. Thank you to the former Board Members for their tremendous input during last years and welcome to the new Board Members for their commitment.

The Conference held in Aruba in June in conjunction with W.E.B. N.V. Aruba was very successful and there was a lot to learn. Papers of very high level topics, sorry for ones that could not make it but we hope to see you in the next Conference to be announce very soon. We like again congratulate WEB N.V. Aruba for their 80th Anniversary in desalination and thank for their support as one of the main sponsors.

On behalf of the CaribDA Board, I would like to thank you all for your continued support of our organization. Your feedback is very important for improving the organization. During and after the conference we are growing in members, we need your input so don't hesitate and feel free to be part of your organization contributing with e.g. new ideas, sending information to be publish and be part of any committee.

Letter From The Editor

By: Juan Miguel Pinto, Energy Recovery, Inc.

Dear Colleagues,

In the past year, CaribDA newsletter has played a role in covering an overview of the Caribbean region events, water treatment technologies and other information related to our market. I am glad to be taking over as the new editor of the newsletter, a position successfully held by Linda Dudley.

Starting with this issue, the newsletter is getting a new "look" and new "inside". One change will be that each issue will feature new technical papers about new technologies and current technologies. Those articles will appear in sections title "Classroom Spotlight" and "New Technologies Spotlight".

I hope you will enjoy reading this issue and we welcome your feedback.

Inside This Issue

Check Us Out On The Web!

WWW.CARIBDA.CO

We Need Your Input!

- Member contributions are welcomed. Please contact us by email at: publications@caribda.com
- Take this opportunity to place your company or plant in the news!
- Share your experiences with others!
- Please contact us if you are interested in joining the editorial staff.

NEW TECHNOLOGY SPOTLIGHT

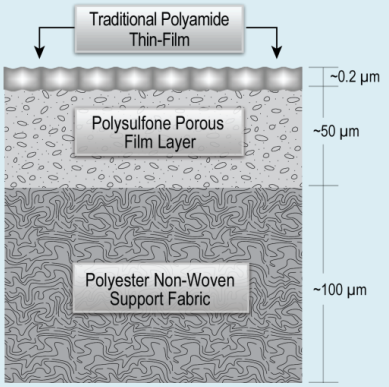
By: Dr. Robert Burk, NanoH2O, Inc.

(Continued to page 7)

Seawater reverse osmosis is now the dominant method to produce freshwater in water scarce regions. Addition of inorganic nanoparticles to the thin film of a seawater reverse osmosis membrane increases membrane permeability while maintaining industry standard salt rejection. Nanoparticles refer to very small particles in the size range of 0.1 microns or less. Those used in nanocomposite membranes are benign materials that have been certified for use in drinking water applications according to NSF Standard 61. As shown in Figure 1, a typical thin-film composite RO membrane is composed of a polyester non-woven support fabric, upon which a layer of polysulfone film is cast. The polymer thin film is formed when an aqueous monomer solution contacts an organic monomer solution forming a polyamide layer that determines membrane permeability and salt rejection.

Figure 1: Construction of a traditional thin-film composite RO membrane

Cross-section rendering of traditional RO membrane



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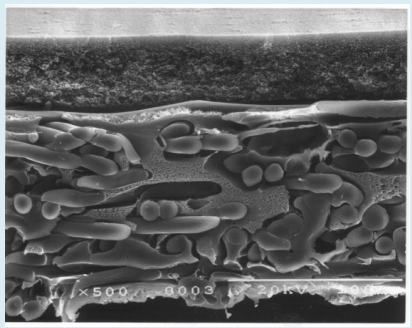
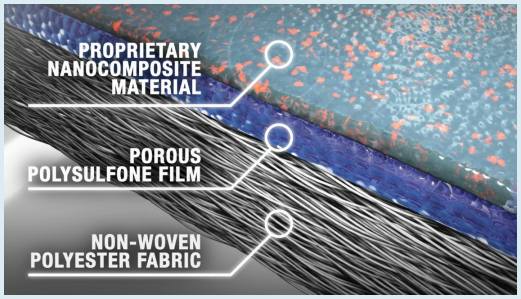


In 2007, a team at the University of California, Los Angeles (UCLA) reported the development of thin-film nanocomposite (TFN) membranes that incorporated nanoparticles into an interfacially-formed polyamide thin film. The initial research was targeted at increasing fouling resistance by affecting the surface charge of the membrane. However, the research demonstrated that membrane permeability was also increased.

Now optimized for use in seawater desalination, TFN membranes employ a proprietary formula of benign nanomaterials that are added to one or both monomer solutions during the synthesis process of a traditional polymer film. As Figure 2 illustrates, these nanomaterials are completely encapsulated within the newly formed film, thus posing no threat of leaching or degradation.

Figure 2: Encapsulated Benign Nanoparticles

Digital rendering of TFN membrane construction:



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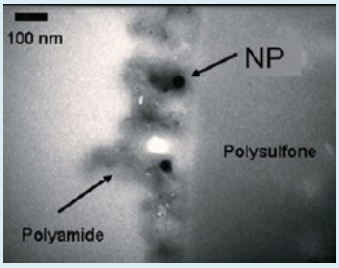

(NP = nanoparticles)

New Technology Spotlight

By: Dr. Robert Burk, NanoH2O, Inc

(Continued from page 6)

Manipulation of the membrane's structure has enabled scientists to control key performance characteristics such as membrane flux and salt rejection. TFN membranes are currently available in standard 8" x 40" spiral-wound configurations. Because of the higher element flux and reduced energy requirements of TFN membranes, minor system modifications may be necessary to accommodate for the increased production, including but not limited to feed intakes, pumps, system conversion/recovery, energy recovery devices (ERD), and post-treatment processes.

Pumps Workshop Recap Paradise Island Bahamas

By: William Anderson, Energy Recovery, Inc.

On 1 October Energy Recovery, Inc. sponsored an Operator Training Workshop at the Atlantis Hotel on Paradise Island, Bahamas - **Operations and Maintenance of Pumps.** The presentations by **Grundfos, Danfoss and FEDCO** were very good and well received. There were a lot of good questions from the twenty CaribDA members attending. It is unfortunate that more could not attend because the information presented by the three speakers – Henning Vester of Grundfos, Palle Olsen of Danfoss and Radu Davila of FEDCO - were focused on helping the operator working in the field. Members, please send me your suggestions for future workshop topics and please suggest where in the Caribbean you would like us to host the next workshop.

Send your suggestions to wanderson@energyrecovery.com.

ALADYR Chile Workshop Summary

By: Juan Miguel Pinto, Energy Recovery, Inc.

ALADYR (Asociación Latinoamericana de Desalación y Reuso de agua) congress in Chile spot light:

After 42 technical presentations about reverse osmosis technologies and applications, and guesses from 12 countries, the ALADYR congress was a success event with nearby 250 attendees.

In the congress, ALADYR chosen a new board of directors and signed an cooperative agreement with AEDYR (Asociación Espanola de Desalación y Reutilización) to share knowledge and expertise between both organizations

In the close ceremony, Luis Curridor, the new elected president, said that "ALADYR must be an organization with more coverage in Latin America", "there are new challenges for the desalination industry and we must overcome those challenges with professionalism"

ALADYR would like to thanks CaribDA for their support in the congress and we look forward working together in the future.

For more information about ALADYR, please visit www.aladyr.cl.

ALADYR's newly elected board of directors.
From left to right:
Mario Gonzalez, Renato Ramos, Juan Miguel Pinto, Luis Curridor, Aurelio Lopez, *Jaime Sepulveda and Jose Munoz*