

OptiFiber® PA-13 Pile Cloth Media TITLE 22 APPROVED!

California Approves Aqua-Aerobic Systems' OptiFiber® PA-13 Pile Cloth Media for Title 22

Following a continued evaluation conducted by the University of California-Davis, Aqua-Aerobic Systems' **AquaDisk® Filter with OptiFiber® PA-13 Pile Cloth Media** was approved for Title 22 governed applications by the California Department of Health Services (DHS).

A comprehensive report detailing the results of the study on the pile cloth media was prepared by the Center for Environmental and Water Resources Engineering, Department of Civil and Environmental Engineering at the University of California - Davis. The report is entitled, Use of PA-13 Pile Fabric Supplement to: Evaluation of the Aqua-Aerobic Systems Cloth Media Disk Filter (CMDF) for Wastewater Recycling Applications in California. This report was submitted to the state of California and subsequently the filtration technology was approved for Title 22 applications on May 6, 2002.

The report states, "The Aqua-Aerobic Systems' Pile Cloth Media Disk Filter produces an effluent equal to or better than other filter technologies that are Title 22 approved, including the first generation needlefelt material. Effluent turbidity values for the Cloth Media Filter, when treating secondary effluent from an activated sludge process **without chemical addition**, were below 2 NTU 100 percent of the time."

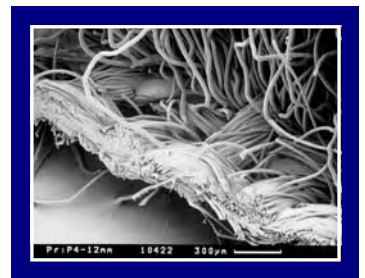
OptiFiber® PA-13 Pile Cloth Media now joins needlefelt cloth media and five other principal types of filtration technologies that are approved by the DHS for Title 22 reuse applications. The AquaDisk® Cloth Media Filter, equipped with OptiFiber® PA-13 pile or needlefelt cloth media, provides many more advantages compared to alternate filtration equipment and microscreens.

OptiFiber® Cloth Media Advantages:

- Designed for specific applications
- Reuse quality effluent
- Reduced footprint
- Low backwash rate
- No downtime for backwashing
- Higher hydraulic and solids loadings
- Expandable to Accommodate Increased Flow
- Less operator attention and maintenance
- All Components are Accessible
- Lowest lifecycle cost

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Microscopic view of OptiFiber® PA-13 Pile Cloth Media

The AquaDisk® Cloth Media Filter Accomplishes Title 22 Requirements Without the Use of Chemicals

During the evaluation period at the University of California-Davis, the AquaDisk® Cloth Media Filter was tested in parallel with the onsite conventional granular-media filter. Analysis of the two technologies concluded that the AquaDisk® Filter performed

equal to, or in many cases better than, the conventional filter in the removal of TSS and turbidity. It should also be noted that the AquaDisk® Filter with OptiFiber® pile cloth media was able to accomplish these requirements **without the use of chemicals**.

Cloth Media Filtration in Comparison to Other Filtration Technologies

Five principal types of filtration technologies approved by the Department of Human Services for Title 22 applications were evaluated against the AquaDisk® Cloth Media Filter (equipped with Pile and Needlefelt media). With respect to turbidity removal, the Cloth Media Filter performed equal to, or better

than, the other five filter types. A major difference between the AquaDisk® Filter and the comparison filters is that the AquaDisk® Cloth Media Filter produced a high quality effluent **below 2 NTU** over a broader range of influent turbidity (*see the chart below from the final report*).

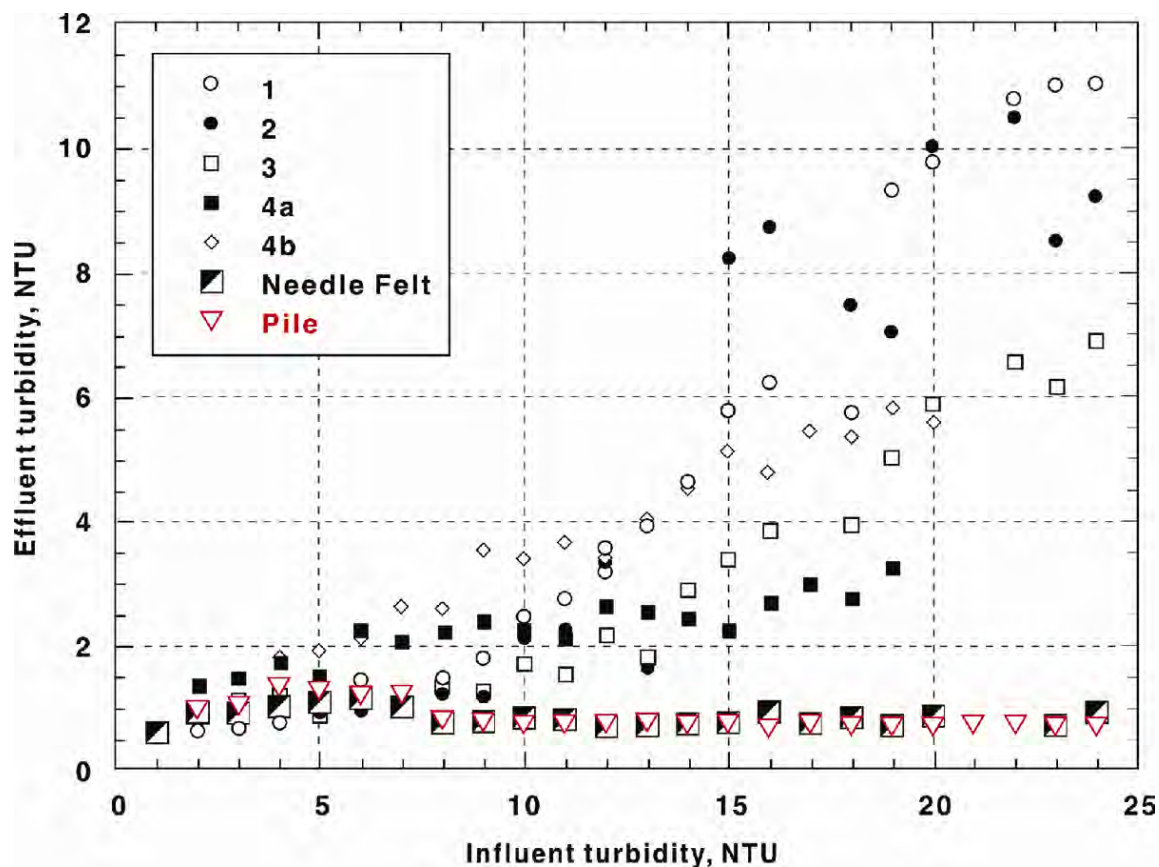


Fig. 4-3

- Deep-bed, continuous backwash upflow mono-medium filters
- Shallow depth, automatic backwash mono, dual and multi-medium downward flow filters
- Deep-bed, mono-medium downward and/or upward filters
- Shallow-depth, mono-medium filters
- ◇ Shallow-depth, dual medium filters

Effect of Filtration Rate and Influent Water Quality on Filter Performance

In the study conducted at the University of California - Davis, the AquaDisk® Cloth Media Filter was operated at three different hydraulic rates (from 3.0 to 6.0 gal/min/ft²) and varying influent turbidities. Flow rate and influent/effluent turbidity were continuously measured and recorded. In all the experiments, the cloth media filter consistently produced high quality effluent with turbidity well below 2 NTU.

Also, at high influent turbidities, effluent TSS did not appear to increase with the filtration rate. Average effluent TSS data at the three filtration rates and high turbidity were not significantly different. For all the experiments, **average effluent turbidity and TSS were less than 0.78 NTU and 0.70 mg/l, respectively.**

Conclusions of the UC-Davis Evaluation for Title 22 Approval

The principal conclusions made by the University of California-Davis, based on the evaluation of the AquaDisk® Filter with OptiFiber® PA-13 Pile Cloth Media for the filtration of secondary effluent from an activated sludge treatment process **without chemical addition** are as follows:

1. The Cloth Media Filter **performs equivalent to, or better than**, other filtration technologies approved for Title 22 reuse applications.
2. Effluent turbidity values for the Cloth Media Filter will be **consistently less than 2 NTU** for influent turbidity values up to 45, at filtration rates between 3.0 and 6.0 gal/ft².
3. The AquaDisk® Filter with OptiFiber® PA-13 Pile Cloth Media **performs equal to, or better than**, other Title 22 approved technology with respect to turbidity, TSS, and particle removal in side-by-side testing with the same feedwater.
4. Based on the results of both cloth media studies, it can be concluded that the Aqua-Aerobic Systems' Cloth Media Filter will **consistently meet Title 22 application requirements** over a broad range of influent turbidity values and filtration rates.

Florida Reuse Plant Utilizes AquaDisk® Cloth Media Filters

PERFORMANCE DATA

To qualify for reuse, Palm Beach County, FL has to reduce its effluent total suspended solids (TSS) to below 5 mg/l and the maximum allowable effluent turbidity is based on 90 percent of the maximum annual TSS/turbidity ratio.

The AquaDisk® Cloth Media Filters at Palm Beach County consistently produce an effluent TSS concentration of 1 - 2 mg/l and an effluent turbidity less than 2 NTU.



Palm Beach County, FL utilizes (6) 12-disk cloth media filters (30 mgd) for the treatment plant's wastewater reuse program to supply land irrigation.

Learn More About the OptiFiber® Cloth Media Filters

Exclusively offered by Aqua-Aerobic Systems, Inc.

Aqua-Aerobic Systems, Inc. is proud to offer the water and wastewater treatment industry a proven Cloth Media Filtration Technology. If you are currently working on a specific project that requires tertiary filtration for reuse, please contact our office and we will be happy to provide you with the information you need to make AquaDisk®, Aqua MiniDisk®, or AquaDiamond® Cloth Media Filters an integral part of your next project.

Technical Seminars

Join the thousands of individuals who have attended an Aqua-Aerobic Systems technical seminar in which OptiFiber® Cloth Media Filters is a featured presentation. If you are interested in attending an upcoming seminar, please contact **Sara Miller** at **815-639-4417** or **smiller@aqua-aerobic.com** for a seminar schedule and synopsis.



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