GREEN TECHNOLOGY ACCELERATOR CENTER

Biofilm Growth Acceleration Water Filtration Performed by NYSP2I

Located in New Paltz, New York, Biofilm Solutions, Inc. (Biofilm Solutions), is developing processes to increase biofilm acceleration for application to BioSand Bag Filter systems in order to achieve faster water filter readiness.

BioSand Bag Filters are sand filters, which are a type of filter known for their reliability and ease of operation. Biofilm Solutions mission is to provide accelerated biofilm growth for application to BioSand Bag Filter systems. Their focus has been on meeting the needs of people whose location in rural or remote areas preclude their ability to access potable water. However, they have recently expanded their interests to include supplying solutions for small scale water filtration needs in developing nations as well as for potable water in emergency response situations.

Challenge

Biofilm Solutions requested the New York State Pollution Prevention Institute (NYSP2I) to conduct an evaluation of a scaled BioSand Bag Filter using methods for accelerating the biofilm growth. Biofilm Solutions requested NYSP2I to evaluate new methodologies of storage and biofilm acceleration as compared to the baseline BioSand Bag Filter system without biofilm growth acceleration.

Solution

NYSP2I staff independently set up multiple scaled BioSand Bag Filters at Rochester Institute of Technology's (RIT) Center for Bioscience and Technology (CBET) greenhouse. NYSP2I introduced local pond water to the filter systems, enabling biofilm formation. CBET assisted NYSP2I with assessing the biolfilm composition and identified nutrients to accelerate the biofilm growth. CBET also evaluated preservation methods to help store, activate, and accelerate the biofilm growth process for field applications. In addition, NYSP2I performed an independent analysis of the reconstituted biofilm's effectiveness in the scaled BioSand Bag Filter to confirm water quality resulting from the scaled systems with the accelerated biofilm.

Results

The work performed by NYSP2I resulted in quantifying the impact of methods to accelerate biofilm growth for BioSand Bag Filter applications. NYSP2I identified key nutrients and dehydration technologies that resulted in an improvement in biofilm growth rate up to two times faster than the baseline system without nutrients and dehydration. NYSP2I also identified storage solutions for ease of field implementation. NYSP2I's project supported BioFilm Solutions in further developing and commercializing their system, utilizing product manufacturing in New York State.

Testimonial

"The BioFilm Solutions team was constantly impressed by the clear step-by-step process developed and excellent communications from the NYSP2I team at RIT. We highly appreciate, recommend and endorse their support and work product."
- Donald Kerr, President; Biofilm Solutions, Inc.

CASE STUDY

CHALLENGE

- Biofilm Solutions challenged NYSP2I to evaluate new methodologies of storage and biofilm growth acceleration for water filtration

SOLUTION

- NYSP2I and RIT's Center for Bioscience and Technology assessed the biolfim composition and identified nutrients to accelerate the biolfim growth
- NYSP2I performed an independent analysis of the reconstituted biofilm's effectiveness in the scaled BioSand Bag Filter

RESULTS

- The work performed by NYSP2I resulted in confirming a two times acceleration in biofilm growth for BioSand Bag Filter applications

NYSP2I PARTNERS

New York Manufacturing Extension Partnership

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