

## Engineering Advisory

8255

### Product: Trickling Filter Media When Used For Oil/Water/Solids Separation

#### Process Description

Several manufacturers, most notably Munters, B.F. Goodrich, and Brentwood, make trickling filter media for biological treatment. A typical data sheet is shown on the next page. In the last few years contractors have been submitting on this material for use as cross-flow oil/water separator media on the basis that any media will perform as specified. Nothing could be further from the truth.

In the first place, normal flow through the media is from top to bottom. The media is actually designed to be self-supporting in the top-to-bottom flow direction. In a cross-flow oil/water separator, the solids quickly plug the media as the direction of flow is 90° to the intended direction.

In the second place, the media will have to be physically removed in order to clean the solids from the media successfully.

Sometimes contractors recognize the proper direction of flow and install the media on its side! In this orientation, the media is apt to collapse. Under even the slightest load the media will tend to distort, if not break, as the load is axial to the orientation intended by its manufacturer.

None of the manufacturers of trickling filter media publishes any data on the subject of oil/water separation. None is even aware that their product is being used for this type of application. If one were to contact the manufacturers of the trickling filter media and ask whether they are in the oil/water separation business, they would say no! The end user, therefore, is simply buying the expertise of a profit-minded contractor

Unfortunately, the use of trickling filter media represents but another sham in the oil/water separation business.

### CONFIDENTIAL

Controlled Distribution to Architect/Engineer Consultants,  
Governmental Agencies, and End Users.

From the Engineering Department of  
**WaterSmart**  
**Environmental, Inc.**



# BIODEK<sup>®</sup>

---

## Background

For many decades, the fixed film reactor (commonly referred to as a trickling filter) has been a widely applied method for the biological oxidation of organic wastes. Biological growth on the media surface converts dissolved organic waste material or ammonia nitrogen into stable by-products including carbon dioxide, nitrates, nitrites, water and biological solids which are later removed by clarification.

The advantages of the fixed film reactor over other methods of treatment include:

1. Low energy consumption
2. Reliable performance
3. High resistance to hydraulic and organic shock loads

4. Unsophisticated operational procedures
5. Effective land utilization
6. Reduced sludge bulking problems

The fixed film reactor is, therefore, a very cost-effective method for BOD (biochemical oxygen demand) reduction, nitrification, denitrification, odor scrubbing and anaerobic treatment.

In an effort to increase the efficiency of the fixed film reactor, various synthetic media have been developed. Unique among these is BIODEK, a modular crossflow media developed by The Munters Corporation.

BIODEK 30060

