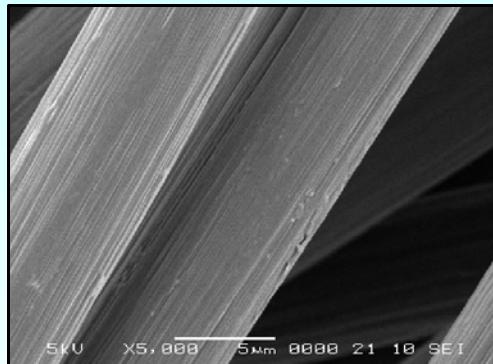
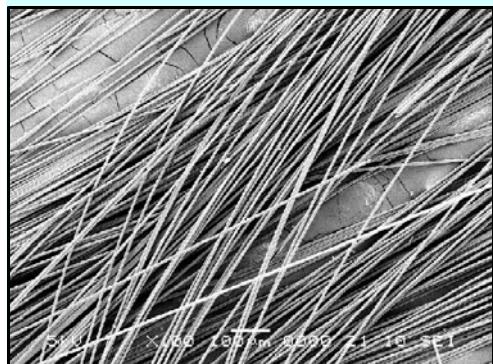
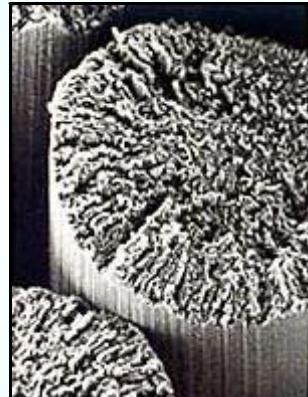
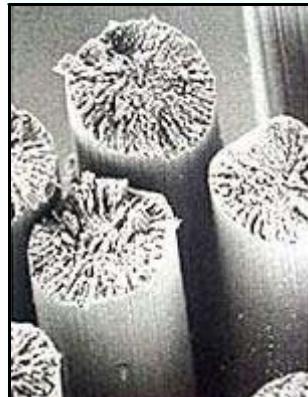


CarbonFiber Contact Media for Biofilm Process

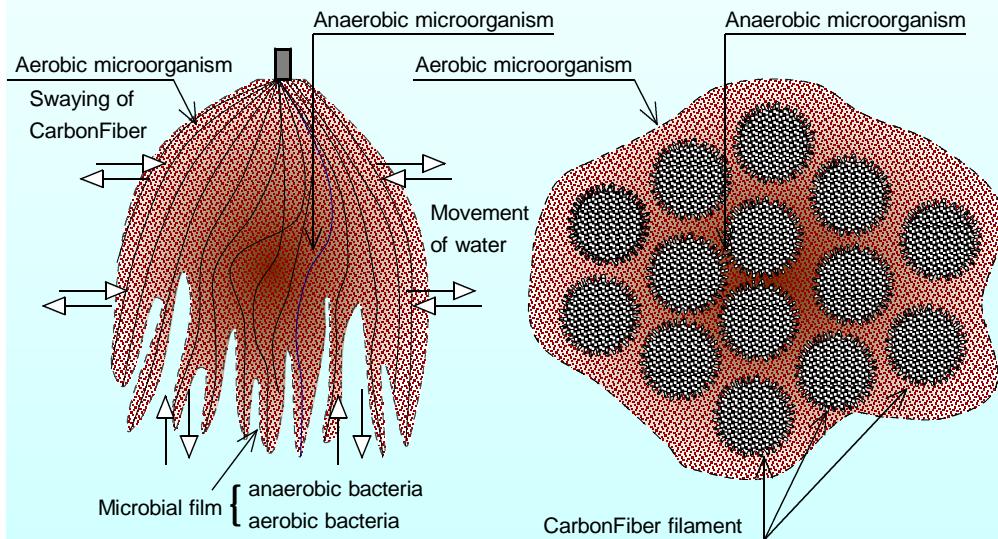
MiraCarbon fulfills the function as a biofilm contact media because its lightweight, strength, and large specific surface area. It can adhere mass activated sludge on the fine filaments. Adsorbed microorganisms activate since filaments are close each other and sway themselves. That leads high level efficiency of treatment and decreases waste sludge.



CarbonFiber filament surface microscopic images



CarbonFiber filament section microscopic images



The Characteristics

Mass adhesion of activated sludge
The filament surface is uneven, so the absorbing amount on each surface is large. The filaments are close to each other, so it can keep mass sludge between filaments. Because sludge gets in deep inside of the clusters, it makes longer residence time. Thus, it can prevent waste sludge.

Treatment by microorganism activation
Anaerobic bacteria accumulate in the deep inside of the filament cluster. Aerobic bacteria with high activation also accumulate around it by swaying its filament and current of water. Microorganisms activate with swaying filament, and then organic matters such as BOD · COD are decomposed. MiraCarbon facilitate decomposition and removal of nutrient salts such as nitrogen and phosphorus.

The Application

For activated sludge process in effluent facility
For treatment speed, water quality, amount
For decrease of waste sludge
For biotreatment in food and chemical factory
For settle and effluent tank and effluent quality
For treatment of rivers, lake/marsh, and sea

The Specification

Material : P A N Water-soluble sizing
Filament : $7 \mu m \times 12,000$ qty
Effective surface area : Tassel 0. $5m^2/g$
Textile 0. $1m^2/g$
Weight : 0. 8g./m

CarbonFiber Contact Media for Biofilm Process, MiraCarbon

General Characteristics of Contact Media

Model Number	Weight	Effective Surface
MiraCarbon CFK-1	20g	10m ²
MiraCarbon CFS-2	20g	10m ²
* Textile Type	100g	10m ²

* The effective surface of textile CarbonFiber is per 100g

* The weight of textile CarbonFiber is 500g/m² per textile area

Effective Surface : Tassel type 0.5 m²/g (CFK-1, CFS-2)
Textile type 0.1 m²/g

◆Surface load of sludge : 50 g/m²

* MiraCarbon has equal to or larger total specific surface than advanced activated carbon (1,200m² / g). However, as contact media, pores inside of filament does not effective for sludge adhesion, so pore surface area is not included to calculate. (the pores are actually effective in many cases)

* Because textile carbon fiber does not spread in the water, effective surface area decreases.

* Large amount of sludge are attached on the uneven filament surface and between filament.

* At installation in existing facility, textile CarbonFiber is used when the flow is fast due to aeration.

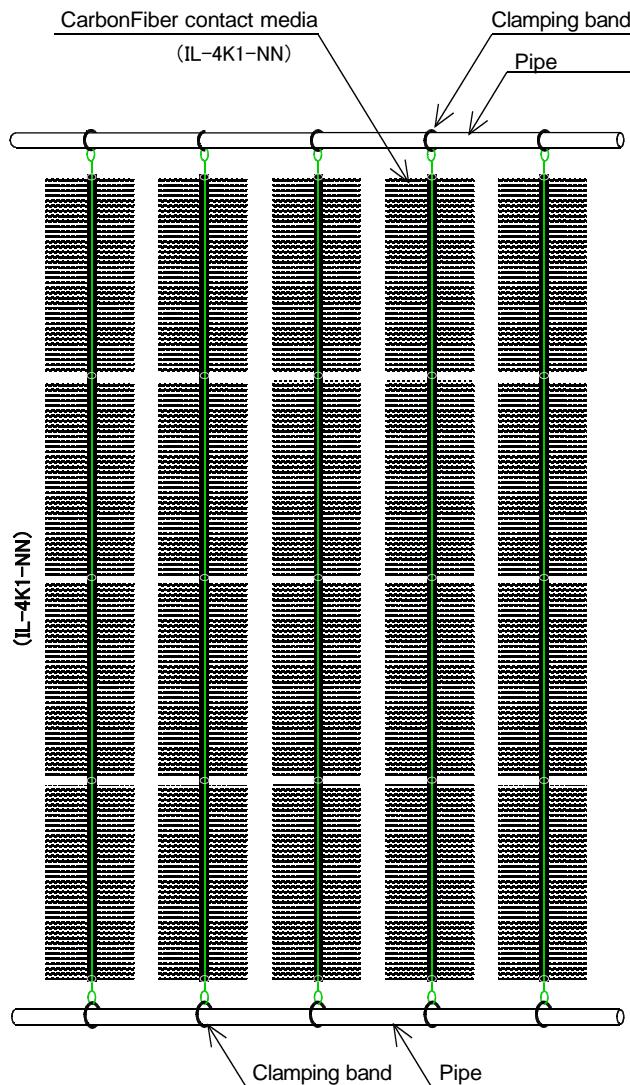
Required surface area and quantity of Tassel Contact media

Required surface (m ² /m ³)	Required length (m/m ³)	Required weight (g/m ³)	MiraCarbon (qty/m ³)
100	240	200	10
150	360	300	15
200	480	400	20
250	600	500	25
300	720	600	30

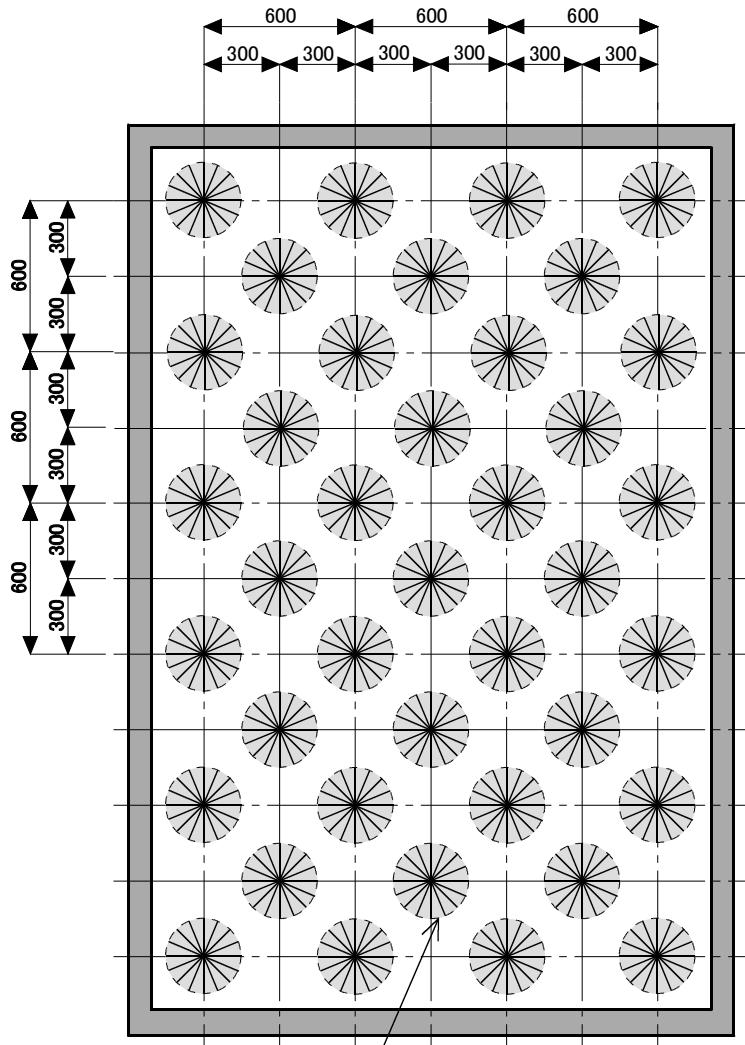
*The Standard: MiraCarbon CFK-1, CFS-2

*Installation such as length connection or frame unit depends on MiraCarbon qty

CarbonFiber Contact Media (Length Connection) Installation



Arrangement of CarbonFiber contact media



*Interval between contact media : 400