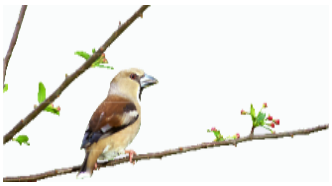

GROUP

FILTER MEDIA AND MICROBES FOR TRICKLING FILTER; MOVING BEDS, ANAEROBIC REACTORS; EXCHANGE TOWERS, DEODORIZATION FACILITIES

LITERAL TRANSCRIP OF THE STANDARD DIN 19557-2M:1989 ABOUT PLASTIC FILTER MEDIA

DIN 19557-2 : 1989

DIN

SEWAGE TREATMENT PLANTS - PLASTIC MEDIA FOR TRICKLING FILTERS - REQUIREMENTS, TESTS

Publisher: German Institute for Standardisation (Deutsches Institut für Normung)

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1. General requirements

DIN EN 19557-2 applies, and the following requirements are set for plastic media in order to can use in the tricling filters.

1.1.- Durable resistance to mechanical wear

1.2.- Durable resistance to weathering and UV rays

1.3.- Resistance to chemical components in wastewater,

1,4.- The raw material can not be biodegradable,

1.5.- The surface can be suitable for biofilm adhesion,

1.6.- The mold can be adapted to create open spaces between individual parts,

1.7.- Selection of the specific surface of the support material,

2.- Physical requirements

The required capacity of the plastic media is determined by the loads that occur during operation, the weight of the media and the sewage sludge. The water fall is not uniform at all levels. It is largely determined by the organic load, the hydraulic load, and the shape and structure of the tank.

Liner capacity is, by definition, the height of the load without intermediate structure specified by the manufacturer.

Each manufacturer / supplier must provide the necessary support for each area of the media.

But it must present at least the following load capacities:

$T = h \bullet A \bullet f \bullet s$

T: Minimum capacity (kN / m2) in kilonewtons per surface

h: media height in meters (m);

A: Theoretical specific surface area declared by the manufacturer in m3 per m2 (m2 / m3);

s: Safety factor = 1.5

f: the loading factor of the biofilm mass (based on the theoretical surface area) as a function of the thickness of the biofilm.

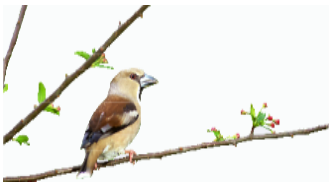

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Table 2 Load coefficient

Biofilm thickness (Mm) F factor for load (KN / m2)

film thickness (Mm)	ctor for load (KN / m2)
2	0,015
> = 3	> = 0,03

If the media is at a temperature higher than 30ºC, it must be considered separately (eg industrial water, closed construction). Those temperature conditions determine the equipment.

3.- Chemical properties

Requirements regarding chemical properties are defined in other section.
Base media materials are flammable, therefore fire safety regulations must be observed.

4.- Technical Use

The manufacturer shall specify the theoretical and demonstrated specific surface (see the CSIC certificate)
The utilization factor is influenced by:
4.1.- The theoretical specific surface
4.2.- The shape and structure of the media
4.3.- The hydraulics charge;
4.4.- Type and concentration of wastewater components.

The clogging of the biologically active surface can vary depending on the active zone according to the operating conditions.

The plastic media is subjected to a reduction in load depending on the material. After half a year of operation under normal conditions the media can reach a maximum compaction level of 1% for structured media, and close to a maximum of 4% for random ones. To reduce loss, more media can be added.

5.- Construction requirements

1.- Structured media are generally made 0.6m high, although they can be halved for fine gradation. The media level of the trickling filter must be a multiple of 0.3 m.
2.- The height for structured media cannot exceed 6 m.
3.- For random ones, the media level is generally between 2 and 4 m.
4.- In suspended loads the media level is generally between 4 m and 8 m.
5.- In exceptional loads, only in exceptional cases.
6.-In structured media, the support grate pass zone should be at least 50% of the total amount of base drain. The support surface must be oriented horizontally.

GROUP

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7.-In structured media, the mesh of the support grid is made according to the size of each media element. While the free passage area of the support grid is at least 25% of the surface of the trickling base.

8.- For the calculation of the wall structure and / or support grids covered by the DIN EN 12255-7 standard, in response to the construction of buildings, there is a risk of obstruction of the media assembly for operating loads greater than 5 kN / m3 .

Testing

As there is no universal test procedure, the requirements must be respected if, after five years of operation, the above properties remain unchanged.

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Biología y Filtración