COCONUT FIBRE BIOFILTER

Composition

BURÉS PROFESIONAL, S.A. has developed the **coconut fibre biofilter product** from a mixture of short and very short coconut fibres plus treatment in the plant to obtain a material that can absorb odoriferous compounds and other pollutants from the residual air stream. The free-living microorganisms that proliferate naturally in this organic material use these compounds as a source of nutrients and energy, via aerobic decomposition.

The coconut fibre is obtained from the esocarp of the coconut palm fruit *(Cocos nucifera)*, through a process of fibre removal and sifting, which separates the long fibres for use in the textile industry and which generates a by-product based on short fibres and particles that can be used as a biofiltration bedding.

This material undergoes a hydration process in the plant and subsequent selection by screening in which a fibrous fraction is obtained with optimal characteristics for its use as a biofilter.

This processing increases the specific area of the material and humidity conditions, enabling the microorganisms to more effectively colonise the medium.

On the other hand, increasing the specific area of the biofiltration bedding material enhances the creation of a concentration gradient in the biofilm, which maintains a continuous flow of mass, from the gas components to the wet biofilm.

Characteristics

Characteristic	Unit	Value
Moisture	(%)	70-90
pH	-	6
Particle size (mm)	(mm)	40-60
Porosity	(%)	96
Organic matter OM	(%)	85-95
Real density	(Kg/m3)	130-160
Moisture bulk density UNE-EN12580	(Kg/m3)	80-111
Electrical conductivity	(dS/m)	1.15
Cationic Exchange Capacity (CIC)	(meq/100gr)	65-100
Water retention capacity	(Water at 10 cm a.c.) (%)	25-50
Aeration capacity	(Air at 10 cm a.c.) (%)	30 - 40
Shelf life	(years)	5--10
Types of microorganisms that eliminate	-	COV'S H2S NH4
Total nitrogen	(%)	0,1-0,5
Total Phosphorus, P_2O_5	(%)	0,1-0,5
Total Potassium, K_2O	(%)	0,1-0,5
Total Sodium, NaO	(%)	0,1-0,5
C/N ratio	(%)	70-80

Coconut fibre is an extremely light material (111 kg/m3) with 96% porosity.

Due to its properties it can be used in systems where coconut fibre is the only filtering agent. Its properties can be improved, combining it with other materials such as heather, which increase sponginess. It is a material with a high degree of odour adsorption.

To use it as the sole filtering agent, the bedding material must be turned periodically to avoid compaction.

Control parameters

Appropriate physico-chemical conditions must be created and maintained to enable the microbiota to proliferate on the bedding material. The essential parameters are temperature, pH, humidity and quantity of nutrients.

The performance and useful life of the biofilter depends on the type of pollutant and its mass load, although **BURÉS PROFESIONAL, S.A.** recommends a shelf life for the filling material of between 3-5 years depending on the environmental conditions. After this period the material used can be simply composted without any special treatment.

advantatges and aplications

This product can be used as a filling material, or as a layer of a multilayer biofiltration.

Biofiltration is a very versatile technique, able to treat odours (ammoniac…), toxic compounds and volatile organic compounds.

The efficiency of the treatment of this elements is higher than 90-95% for low contaminant concentration (<1.00ppm).

The biofilters offered by **BURÉS PROFESIONAL, S.A.** are used successfully in the following activities:

- EDAR
- Composting plants
- Dump areas
- Chemical industry
- Alimentary industry
- Water cleansing
- Smoking industry
- Paper industry
- Pharmaceutical industry
- Furniture industry
- Painting and recovering application
- Resinous materials treatment
- Leather treatment

The biofilters offered by BURÉS PROFESIONAL, S.A. is a technological alternative respectful with the environment, with an effective control of the atmosphere's and odours contamination. Some of its great advantages are the following:

- Simple technology and low application cost; economically available to all business.
- High efficiency of volatile contaminants and odoriferous complexes elimination
- Odoriferous contamination control
- Nearly null maintenance of the biofilter is required.
- Total decomposition of the contaminants without secondary products creation through the Biofiltering process.
- The filling material is organic, non toxic and biodegradable through composting once its useful life is over.

Typical efficiencies of a peat bedding filter for eliminating odours.