FILTRALITE®

Filtralite® Air

AIR TREATMENT

Efficiently removing odour

Our purpose

Pure air is a necessity for comfortable living. Odour from industry, farming, and waste water treatment can be purified with biofilm in bio filters.

With its unique porosity, Filtralite® Air Filter Material offers optimum conditions for biofilm growth and for air to flow through the filter bed in order to retain and adsorb more odours. This feature allows for larger volumes of air to be filtered through the same volume as contact area is increased. Our products also decrease operation costs due to high storage capacity and low pressure loss over time.
Filtralite® Air filter media is an innovative and premium filtering product tailored to meet tomorrow's needs.

What is odour?

Odours are often results of a complex mixture of chemical compounds. The effect of dilution is different for various compounds, not only quantitatively but also qualitatively. Sources for odour can be manure, waste water plants, industry and waste fillings.

What is Filtralite® Air Filter Material?

Filtralite Air Filter Material is selected or tailor made Lightweight Aggregates. LWA has been around since the 1940's and is porous, robust and ceramic beads.

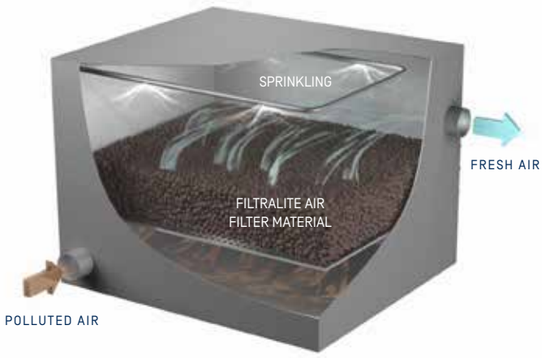
We transform 1m^3 of freshly excavated clay into 5m^3 of lightweight aggregate. Through this highly resourceful return ratio of 1:5, we feel that our production positively impacts the full life circle of a natural resource, from cradle to grave. By combining the All-in-One features such as being durable, strong, lightweight, water absorbent and recyclable, Filtralite products are benefiting the environment, limiting resource requirements and improving our living and working conditions. We like to call it 'Borrowed from Nature'.

What is the advantage of using Filtralite® Air Filter Material?

- Stable structure – do not collapse
- Durable and resistant natural clay mineral material without any hazardous or artificial components.
- Low weight means reduced construction costs, filling and removal costs. The horizontal and vertical pressure on walls and structure is 5 times lower than ordinary mineral materials.
- Defined product – Well defined grading.
- **Good storage capacity for biofilm and excellent permeability results in low pressure loss and long service time.**
- **Large surface area results in an efficient carrier for biofilm.**
- Water reservoir – the porous structure absorbs and holds water which eases water trickling.
- An adsorbent with good properties will help bio-filtration. Filtralite Air Filter Material has sorption capacity towards H_2S so the filter will start removing odour even before the biofilm is established.

Air and gas purification plant

The simple principle of treating odour is to pump the gas through a filter media upstream or downstream with water sprinkling.



Upstream system. Polluted air is pushed upwards through the filter while sprinkling water drip downwards.

Downstream system. Polluted air is pushed downwards through the filter together with sprinkling water.

Filtralite Air filter beads

Filtralite Air Filter Material has huge surface area which is an excellent base for biofilm.

BEVAS Oslo (2001)

- Municipal waste treatment, modern activated sludge and tertiary filtration, 310 000 PE
- 50 000 m^3 air/hour
- 20 m x 25 m surface with 1 m depth
- 500 m^3 Filtralite Air 2-4 mm round.
- Downstream with irrigation system

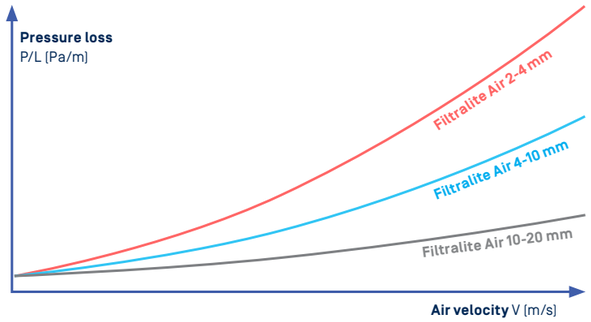
Filtralite®
Air Filter products

Which Filtralite Air Filter product to be selected?

Biofilm efficiency is connected to volumetric elimination capacity which again is controlled by the "rate of mass transfer capacity" and/or "microbial degradation rate". The transfer rate is dependent on the specific surface of the media, but fine media is increasing air pressure drop and the operational costs. Therefore, optimization of bio filter cost efficiency is a “trade off” between removal efficiency and operation costs. A material with large surface area and high air permeability which in addition is not biodegradable like Filtralite Air is preferable.
Dust filters may be needed for pig farms and other installations with high dust content to avoid early pressure drop. Many installations may consider using Filtralite Air Filter Material 10-20 mm in a combination with 4-10 or 2-4 mm in several layers of filter material to maintain low pressure drop and highest possible surface area.

		Bulk density [kg/m^3]	Particle density [kg/m^3]	External volumetric air content [%]
	**2-4 mm**	350	630	45
	**4-10 mm**	300	550	45
	**10-20 mm**	270	490	45

Figures for Filtralite. Approximate values. The figures may vary some from country to country.



Principle drawing
Pressure loss as function of air velocity for different Filtralite filter media. Even though the external available pore volume is rather similar, the coarse filter material has lower pressure loss than finer filter materials. But since the finer filter material has larger surface area available for biofilm, the best suitable material is a trade-off and needs carefully selection.

Biogas plant, Bogense Denmark
- Treats approximately 300 000 tons of biomass per year
- 40 000 m^3/h into 750 m^3 Filtralite 10-20 mm, D = 18,5 m, h= 1 m
- Upwards flow with nozzle water sprinkling system

When cleaned, the odour-filled air is pushed through the water-humidified layer of Filtralite Air. After a few weeks, a large amount of nature's own bacteria, which feed on the nutrients in the odour-filled air, will start growing on the surfaces of the Filtralite Air.

More about Filtralite®...

Filtralite® filter media is made by heating clay to around 1200° C, followed by crushing and sieving.

Dry particle densities in the range from 500 to 1.600 kg/m^3 and aggregate size from 0 to 20 mm can be “tailor-made” for specific applications.

In addition to its low density and high porosity, Filtralite® offer high abrasion and impact resistance.

Filtralite develops and manufactures quality filter media for all water and air treatment applications:

- **Filtralite® Pure** for drinking water solutions, both for physical filtration and biological treatment.
- **Filtralite® Clean** for wastewater treatment, both for biological process and tertiary filtration.
- **Filtralite® Nature** for onsite water remediation.
- **Filtralite® Air** is a premium filtering product which removes odour and results in clean air.

FILTRALITE®

Contact information

www.filtralite.com

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