

FILTRALITE®

Filtralite® Air



AIR TREATMENT

Efficiently removing odour



Our purpose

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

With its unique porosity, Filtralite® Air Filter Material is conducive to biofilm growth and allows 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 produced by a complex mixture of chemical compounds. The effect of dilution is different for various compounds, not only quantitatively but also qualitatively. Manure, wastewater plants, industry and waste landfill sites are all sources of odour.

What is Filtralite® Air Filter Material?

Filtralite Air Filter Material is made of selected or tailor-made Lightweight Aggregate. LWA was first produced in the 1940s and constitutes porous, robust and ceramic beads.

We transform 1 m³ of freshly excavated clay into 5 m³ of lightweight aggregate. Through this highly resourceful return ratio of 1:5, we feel that our production positively impacts the full life cycle of a natural resource, from cradle to grave. Filtralite products are durable, strong, lightweight, water absorbent and recyclable. These All-in-One 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, filling and removal costs. The horizontal and vertical pressure on walls and structure is 5 times lower than that of ordinary mineral materials.
- Defined product – Well-defined grading.
- **Good storage capacity for biofilm and excellent permeability results in low pressure loss and long service life.**
- **Large surface area results in an efficient carrier for biofilm.**
- Water reservoir – the porous structure absorbs and holds water, which improves the efficiency of 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.



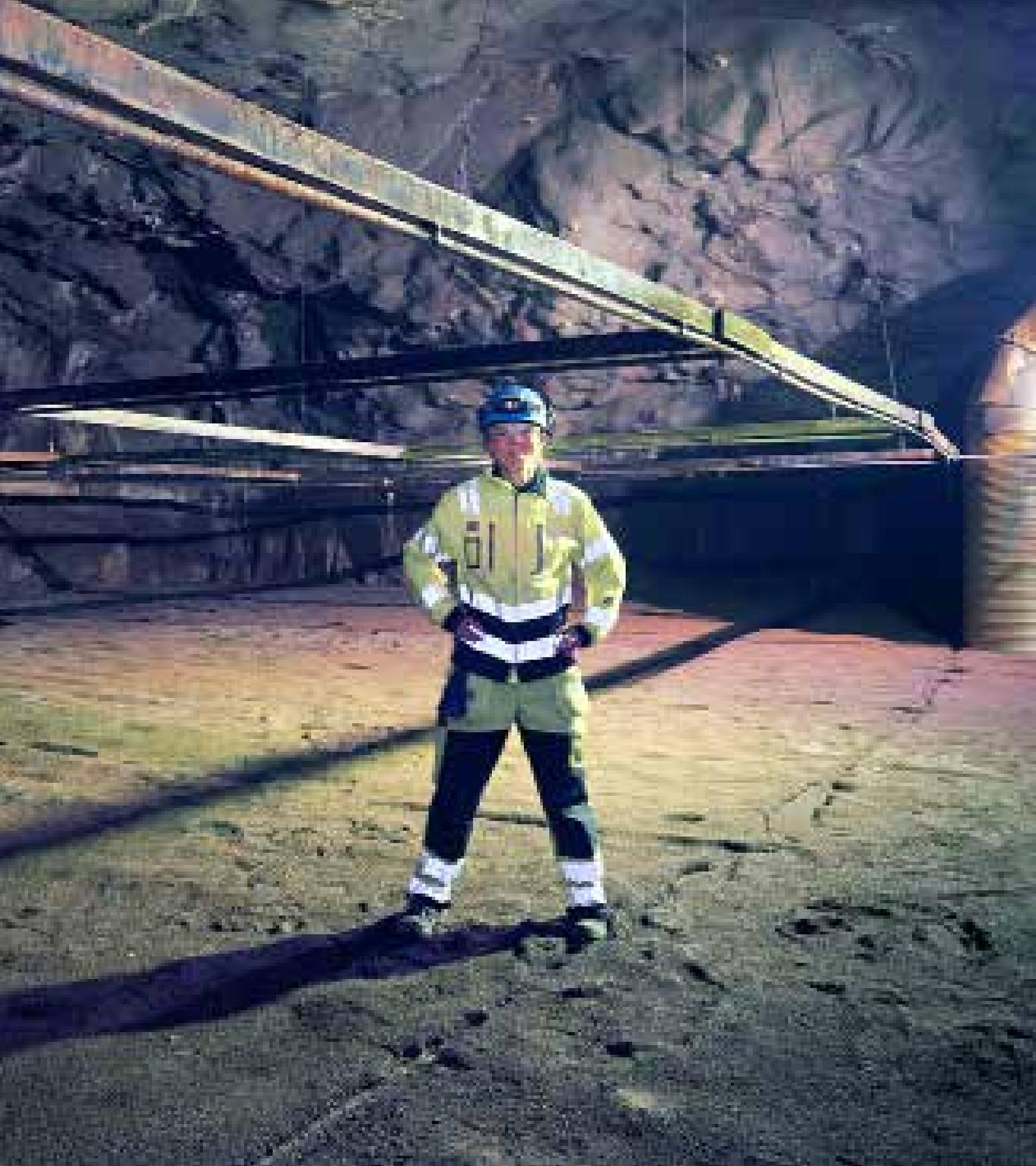
Upstream system. Polluted air is pushed upwards through the filter while sprinkling water drip downwards.

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

Filtralite Air filter beads

Filtralite® Air Filter Material has a 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
- Air Filtration system: BBK P 365
- 50,000 m³ air/hour
- 20 m x 25 m surface with 1 m depth
- 500 m³ Filtralite Air 2-4 mm round.
- Downstream with irrigation system

Filtralite®

Air Filter products

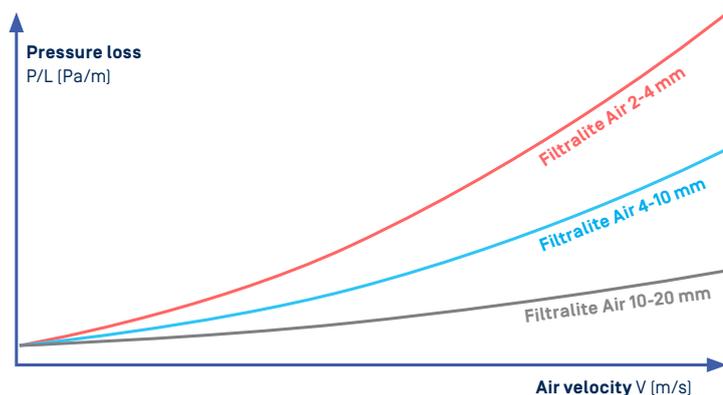
Which Filtralite Air Filter product should you choose?

Biofilm efficiency is linked to volumetric elimination capacity, which is in turn controlled by the rate of mass transfer capacity and/or the microbial degradation rate. The transfer rate is determined by the specific surface area of the media. Fine media increases air pressure drop and operational costs. Therefore, optimization of bio filter cost efficiency is a “trade off” between removal efficiency and operation costs. Filtralite Air is the best option as it offers a large surface area, high air permeability, and is not biodegradable.

Dust filters may be needed for pig farms and other installations with high dust content to avoid early pressure drop. The use of Filtralite Air Filter Material 10-20 mm combined with several 4-10 or 2-4 mm layers of filter material is the best option to maintain low pressure drop and obtain the 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 from country to country.



Comparison graph

This graph shows pressure loss as a function of air velocity for different Filtralite filter media. Even though the external available pore volume is similar, coarse filter materials have lower pressure loss than finer filter materials. However, since finer filter materials have a larger surface area available for biofilm, the best suitable material is a trade-off and requires careful selection.



Biogas plant, Bogense, Denmark

- Treats approximately 300,000 tons of biomass per year
- 40,000 m³/h into 750 m³ Filtralite 10-20 mm, D = 18,5 m, h= 1 m
- Upwards flow with nozzle water sprinkling system

In operation, the odour-filled air is pushed through the water-humidified layer of Filtralite Air. After a few weeks, a large amount of naturally occurring bacteria, which feed on the nutrients in the odour-filled air, will start growing on the surface 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/m³ 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® offers high abrasion and impact resistance.

Filtralite is the brand for 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 that removes odour and results in clean air.

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www.filtralite.com

Filtralite is a Leca® International brand