CN CONSULTING

Vielfältige Lösungen
mit natürlichen,
mineralischen Produkten

# CN Filter - Expanded Clay

## for biological water purification

Biological water/gas purification is based primarily on one main principle: purification by bacteria that decompose toxic matter and which is ultimately a natural process.

A high population density of the bacterial strains and as large a contact area with the water/gas as possible is necessary to optimise the decomposition of toxic matter.

The key factors for the functioning of a filter ceramic are granule size and shape, on the one hand, and the nature of the pore structure, on the other.

In order to obtain a realistic value for the purification performance, the pore structure must be differentiated as follows:

| | |
|---|---|
| Inter-particle pores or void volume | Aids through-flow and turbulence |
| Closed pores | Not utilisable |
| Open pores | No through-flow possible |
| | Through-flow possible: Not colonisable (Ø < 2 µm) |
| | Through-flow possible: Colonisable (Ø > 2 µm) |

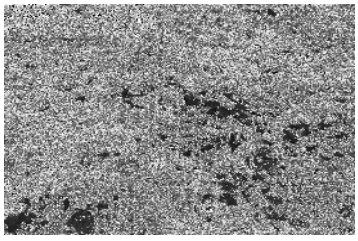
Not until the open pore surface area that allows through-flow has been calculated can you get information about the performance of the filter body. A fine capillary inner structure is of practically no use as there is insufficient contact with the waste water due the relatively high flow velocity or rather no significant through-flow due to the high capillary bonding (suction tension pF > 4.2) of the water.

Corrected to this realistic scale we get the following active effective surface areas:

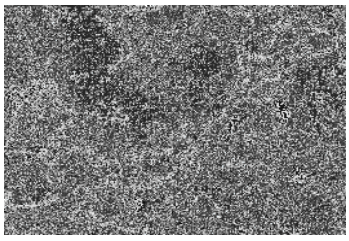
| | |
|---|---|
| CN Expanded clay 2 - 4 mm, cracked: | approx. 70 m²/l |
| CN Expanded clay 4 - 8 mm, cracked: | approx. 60 m²/l |
| CN Expanded clay 10 - 20 mm, cracked: | approx. 12 m²/l |

*By comparison:* if you measure the total pore surface area you can get from all the pores present, you will reach the fantastic amount of approx. 8,000 m²/l, which of course has no

### Close-up view

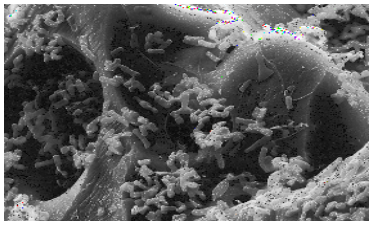


Expanded clay surface, uncracked



Expanded clay surface, cracked

### Even closer view



Expanded clay surface, colonised

Last updated: August 2021