



VitreSphere[®] nano
The unique filter pearls.



High Performance Filter Media

SiLibeads[®] & **VitreSphere**[®] nano
by Sigmund Lindner GmbH



Comparison of filter material:

- shape and geometry
- permeability and flow performance
- porosity and dirt adhesion
- endurance and dirt load capacity
- filter bed expansion



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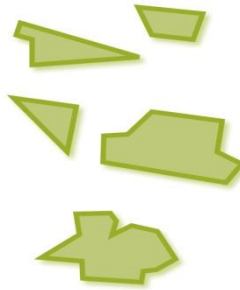
Comparison of filter material: Geometry

 sand



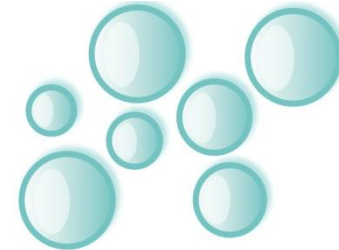
- amorphous, uneven shape
- porous to very porous surface
- low material hardness and surface quality
- high abrasion, excessive wear
- high dust content (undersize, zero grain)

 glass granules



- amorphous, uneven shape
- smooth, sometimes sharp-edged surface
- higher material hardness and surface quality
- abrasion and wear caused by sharp edges
- high dust content (undersize, zero grain)

 filter pearls



- even, geometric shape
- smooth, closed surface
- high material hardness and surface quality
- minimal abrasion and lowest wear
- absolutely no dust content

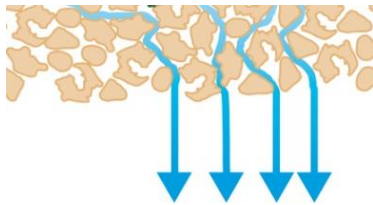


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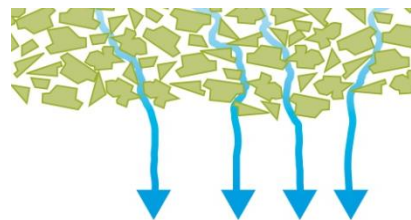
Comparison of filter material: Permeability

 sand



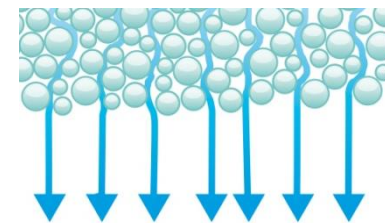
- amorphous, chaotic arrangement
- inhomogeneous hydraulic conditions
- long retention time of pore water
- high risk of contamination and infection
- limited usage of filter bed

 glass granules



- amorphous, chaotic arrangement
- inhomogeneous hydraulic conditions
- long retention time of pore water
- risk of contamination and infection
- limited usage of filter bed

 filter pearls



- regular equal sphere packing
- homogeneous hydraulic conditions
- short retention of pore water
- uniform permeability and low risk of contamination and infection
- complete utilization of filter bed



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Comparison of filter material: Dirt adhesion

 sand



- low self-cleaning during backwashing
- continuous increase of deposits and adhesions
- chlorine depletion due to organic residues
- increasing demand for disinfectants
- risk of rising chloramin values

 glass granules



- good self-cleaning during backwashing
- lower increase of deposits and adhesions
- slightly increased chlorine depletion due to organic residues
- less need for disinfectants compared to sand
- lower risk of rising chloramin values

 filter pearls



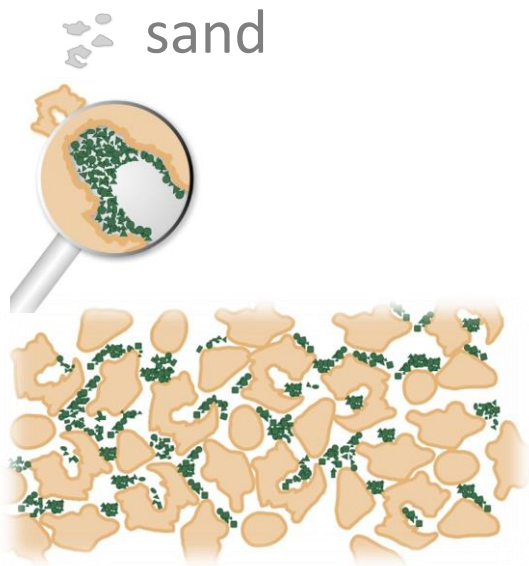
- maximum self-cleaning and optimized dirt release during backwashing
- no deposits and clogging
- no remaining dirt or other organic residues
- no additional chlorine depletion in the filter bed
- significantly reduced need for disinfectants



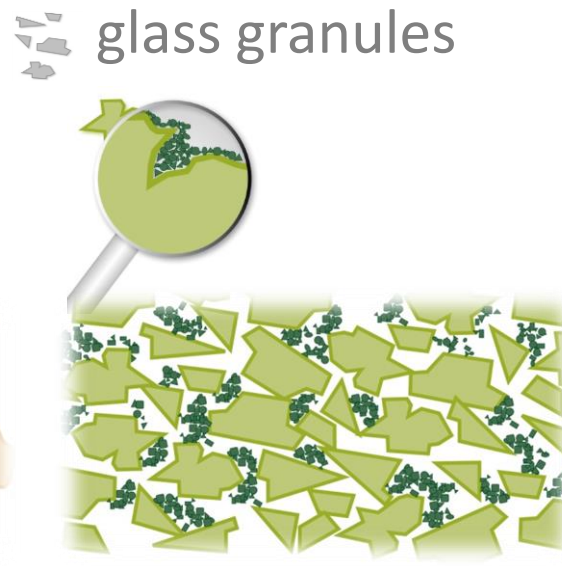
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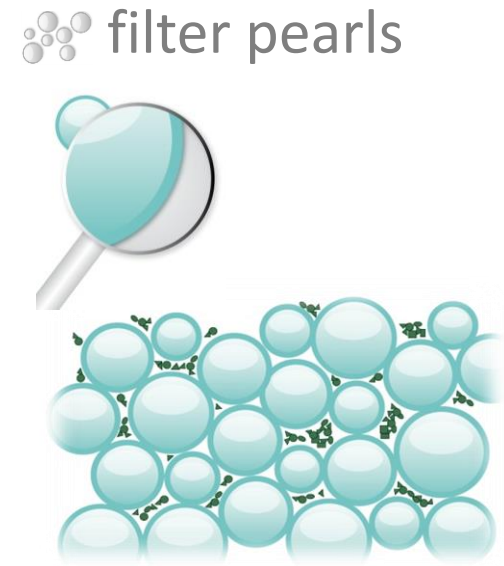
Comparison of filter material: Dirt adhesion before backwashing



- continuous increase of deposits and adhesions
- porouse surface
- high risk of clogging



- good self-cleaning during backwashing
- lower increase of deposits and adhesions
- lower risk of clogging



- trapping of the contaminants within the pore space
- optimum sphere packing
- no deposits and clogging, no adhesion

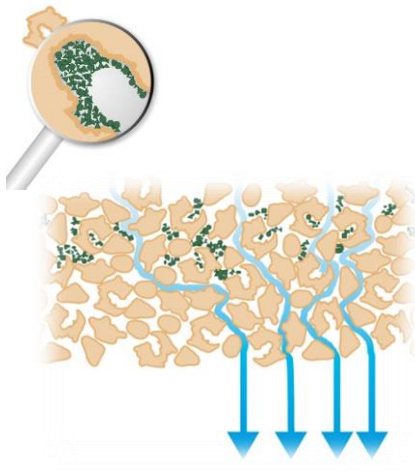


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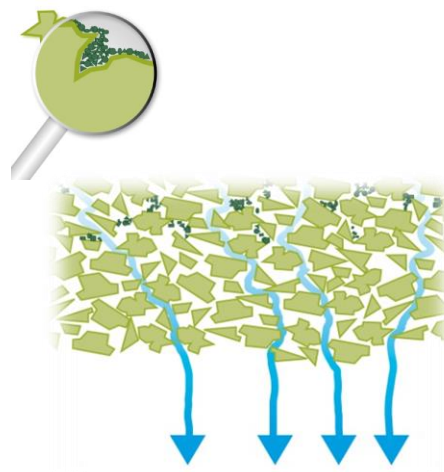


Comparison of filter material: Dirt adhesion after backwashing

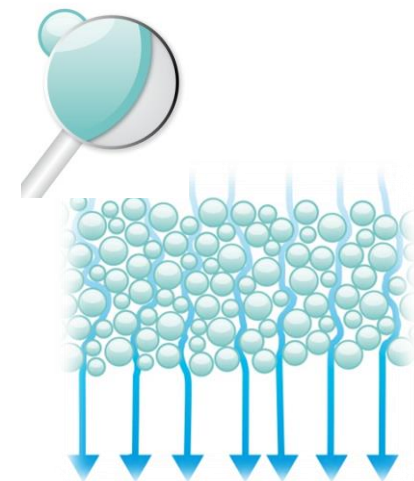
 sand



 glass granules



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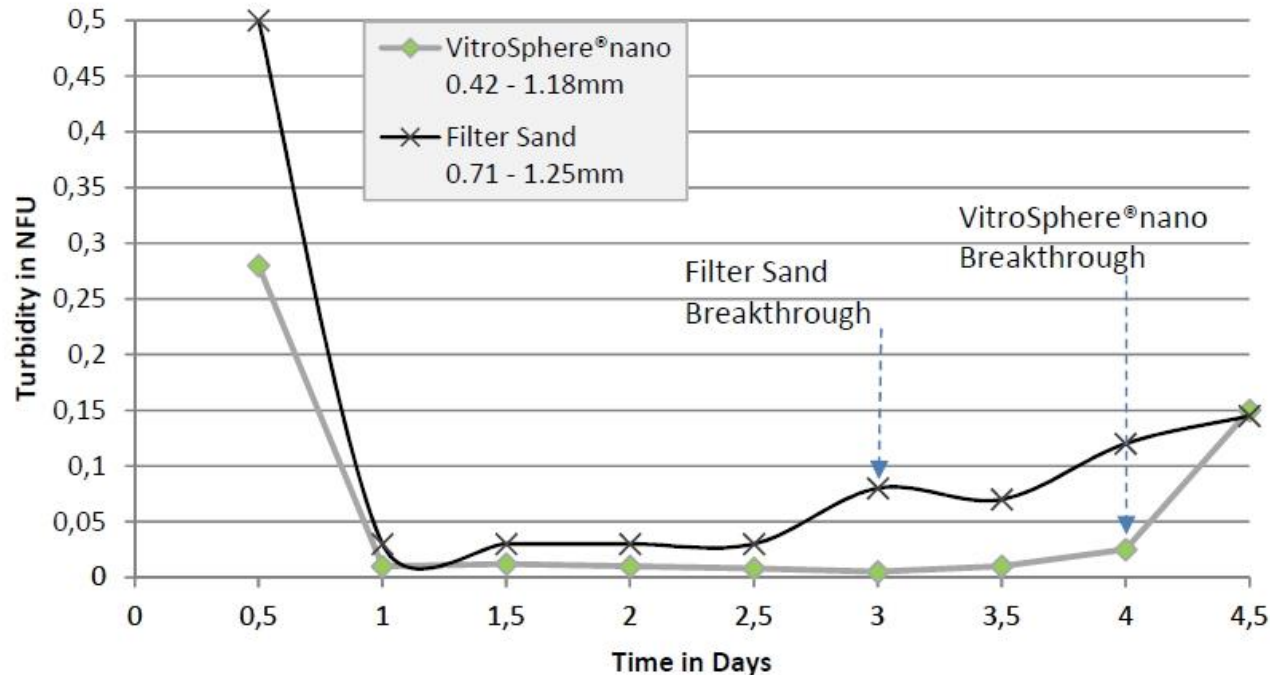


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Endurance

Time Between Backwash Cycles



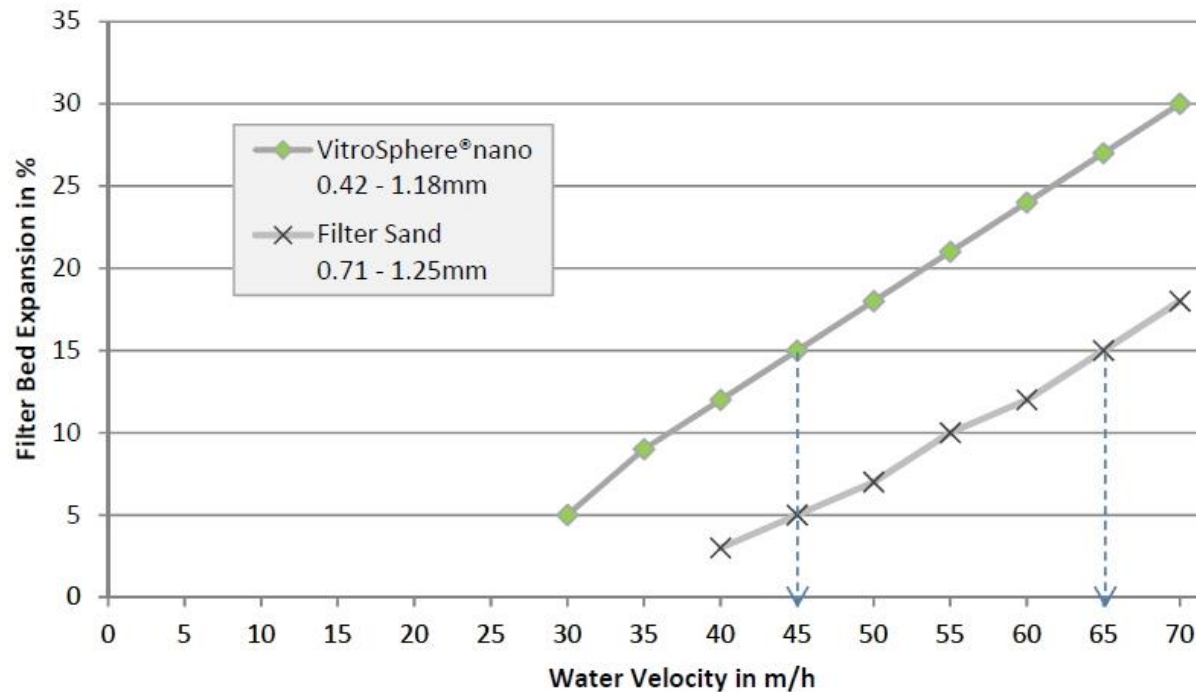
Compared to sand filters VitroSphere® nano offers a 25% longer holding time between backwash cycles compared with a significantly lower turbidity.



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Filter Bed Expansion at 25°C



Due to its excellent fluidization properties VitroSphere® nano saves up to 80% pump energy . VitroSphere® nano reaches a 15% filter bed expansion already at a backwashing velocity of 45 m/h while sand needs 65 m/h.



The main features at one glance!

SiLibeads® & VitroSphere® nano by Sigmund Lindner GmbH

- ensures a highly effective filtering process.
- produces crystal-clear and skin-friendly water.
- has outstanding self-cleaning properties (> 40% vs. Sand).
- provides an immensely shortened duration of backwashing.
- reduces the need of filter material by up to 25%.
- drastically reduces the need of water and energy.
- allows a significant reduction of chemical agents.
- extends the service intervals.
- has an almost unlimited durability.



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Your responsible choice for sustainability
and environmental awareness.

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