

Filter analysis

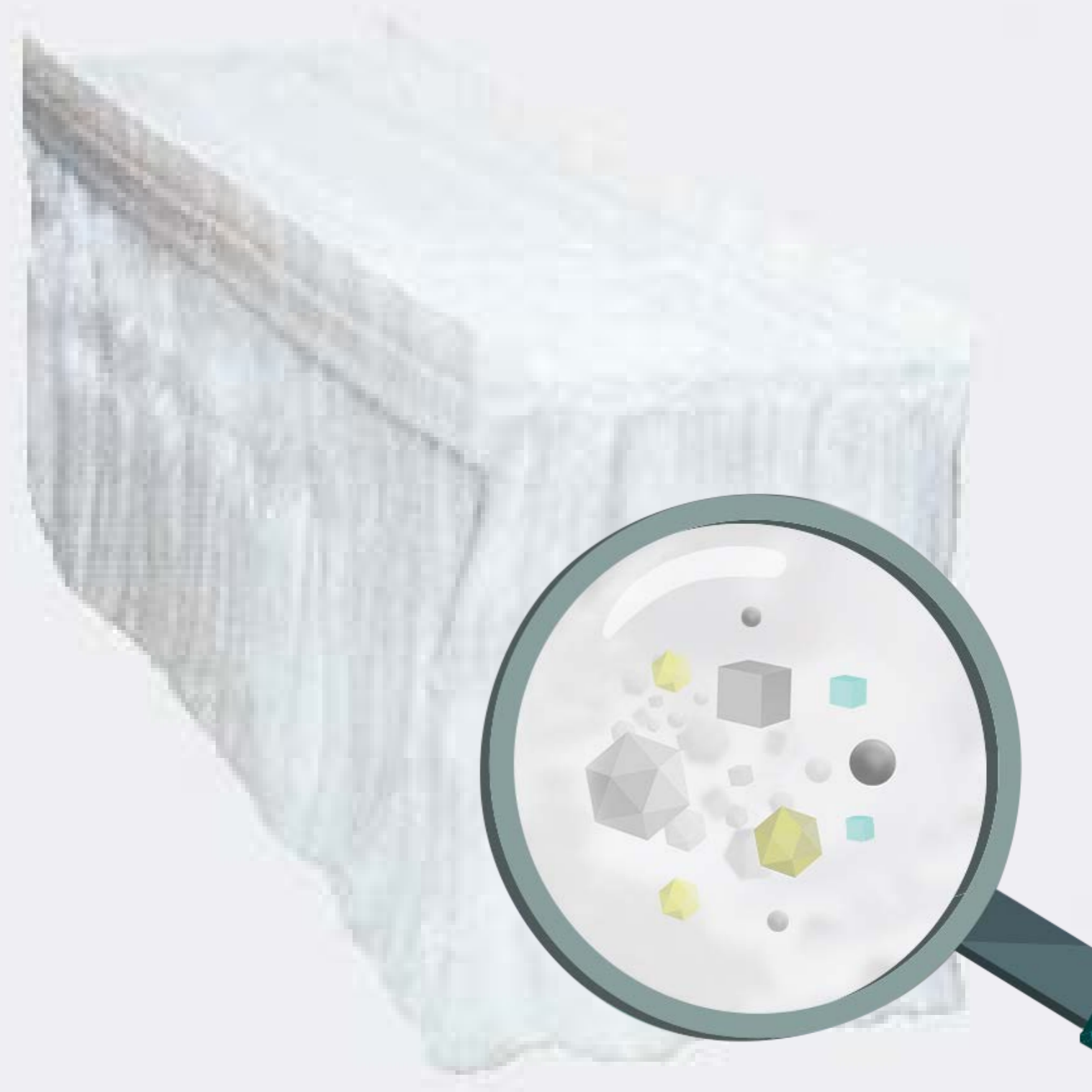
At Zehnder, we pride ourselves on getting measurable results for our clients – the proof is in the filter. Read on to discover just how effective they are!



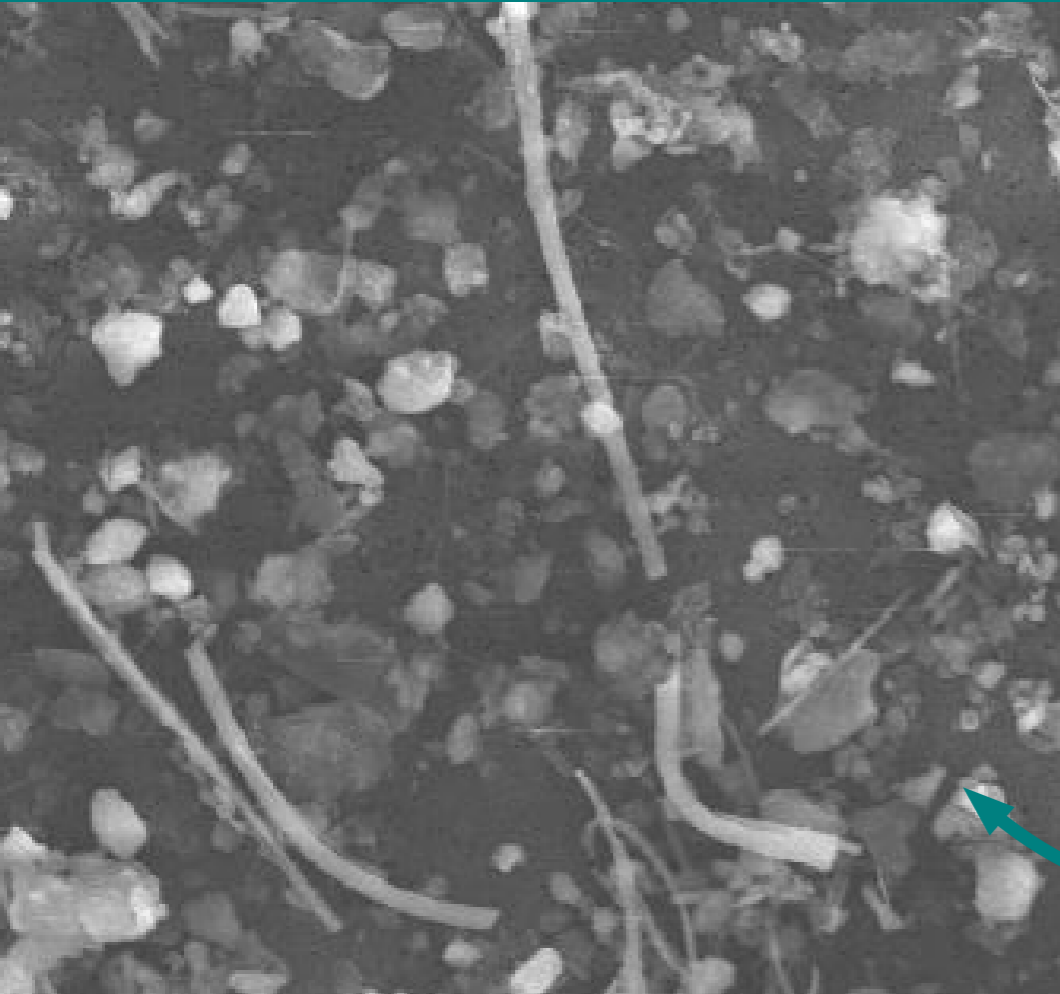
What it is all about

High quality filters, every time

At Zehnder Clean Air Solutions, we regularly run our filters through a rigorous testing and analysis process to ensure that they meet our exact standards. Our approach ensures that our customers can be confident that their employees are breathing clean air. The analysis also reveals some of the most commonly captured types of particles, illustrating that our filters are working as intended.



Precision testing for a precision product



We love seeing positive results for our clients – and we can produce them for you too!

Zehnder's measurement process begins by taking a used filter and sending it to a laboratory. The filter undergoes careful preparation, including an ultrasonic treatment in ethanol. The resulting suspension is then filtered through a gold-coated nucleopore filter and run through a scanning electron microscope.

This intense process provides the values you can see listed in the table on the next page representing the contents of a small extract [$\sim 1 \text{ cm}^2$] of a single filter. We divide the results between inorganic and organic (naturally occurring) particles as well as fibres, which are bigger than particles. The table offers a breakdown of the frequency at which the particles occur, broken down as numbers of different particles per 100 particles.

Below is the table for a logistics company. These results show that the building itself produces a lot of particles due to wear and tear, while much of the other dust is the natural by-product of employees moving around.

In addition to the potentially useful data, this process provides proof that we're catching what customers want us to catch and leaving their air perfectly clean. All of our solutions are designed and configured to exactly respond to our customers' needs.

Particles under
electron microscope



Laboratory results

Dust is unavoidable in any industry – it's the art how to catch it effectively.

Type	Amount [%]	Main element	Other elements	Size [μm]	Comment
Anorganic					
	15	Si, O	(Al, Na, Ca, K, Mg, Fe)	2 - 7	e.g. silicate minerals
	10	Ca, O	(Mg, Si, Al, Fe)	2 - 7	e.g. construction dust
	5	Fe, O	(Si, Al, Ca, Cl)	2 - 4	e.g. rust
	<5	Ti, O	Si, Al, Zn, Fe	4	e.g. paint
	50	C, O, Si	Al, Ca, K, Fe, Mg, Na	2 - 12	e.g. plastics, paint, rubber
Organic					
	15	C, O		2 - 8	e.g. plastics, paper
Fibres					
	<5	C, O		24 - 60	e.g. textile fibres, cellulose

     **#startwithcleanair**
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