



**viledon®**

**e.FFECT**  
electronic Freudenberg Filter  
Efficiency Calculation Tool

## **EFFICIENCY CALCULATION WITH E.FFECT**

**YOUR PATH TO THE OPTIMAL FILTRATION SOLUTION**

FREUDENBERG  
FILTRATION TECHNOLOGIES

 **FREUDENBERG**  
INNOVATING TOGETHER



## INDIVIDUAL SOLUTIONS FOR INTAKE AIR FILTRATION OF TURBOMACHINERY

**FIND THE OPTIMUM FILTER SYSTEM  
FOR YOUR GAS TURBINES AND COMPRESSORS!**

Standardized systems for intake air filtration are often inefficient and do not sufficiently exploit optimization potentials. The more filter systems are tailored to the respective environmental conditions and plant requirements, the more useful, safer and more energy-efficient they will be. To help you achieve the best solution, we recommend the use of e.FFECT – the electronic Freudenberg Filter Efficiency Calculation Tool.

### DIFFERENT AMBIENT AIR

Depending on the location, the prevailing ambient air can vary greatly. Plants that are located offshore or close to the coast are often affected by corrosion caused by salt in the air. In desert regions, on the other hand, sand storms and

early morning fog challenge reliable operation. Even fine dust and pollutant gases in urban conurbations have a negative impact on machines and production processes.

### MULTIPLE REQUIREMENTS ON THE FILTER SYSTEM



The effective prefiltration and final filtration of the intake air of turbomachinery not only protects it from contamination, but simultaneously increases the efficiency and performance of the turbines and compressors. Reliable corrosion protection and the avoidance of dust accumulations make your machine more reliable and durable as well as less maintenance prone.

## E.FFECT FOR THE OPTIMAL SOLUTION

To optimize filter systems, they need to be adapted to the requirements of the process and to the environmental conditions of the plant location.

For the best possible filter selection of air filters, it makes sense to evaluate the filtration systems against the particulate matter fractions PM1, PM2,5 and PM10 by means of their separation performance. Standardization in the sense of a perfect filter solution for everything would not take into account individual optimization potential. **PM matters!**

Using the e.FFECT calculation tool developed by us, the path to your optimal filter solution is even simpler and more solution-oriented.

### Simple comparison

e.FFECT makes the analysis of the performance of single and multi-stage filter systems easy. The program calculates the individual separation degrees as well as the stored amounts of dust for filter stages operated in series. The calculations are based on the filter test standard ISO 16890 as well as on parameters for the characterization of ambient air. In this way, different filter sequences can be calculated and compared objectively with one another.

### Reveal the reality

The calculation of a filter combination using e.FFECT is based on predefined parameters. An optimized filtration solution can be selected on the basis of the site-specific particulate matter concentration of the ambient air. In addition, variables relevant to the process, such as the annual operational time or the volume flow, are included in the analysis. As a result, e.FFECT presents the decrease in particulate matter concentrations along the individual filter stages.

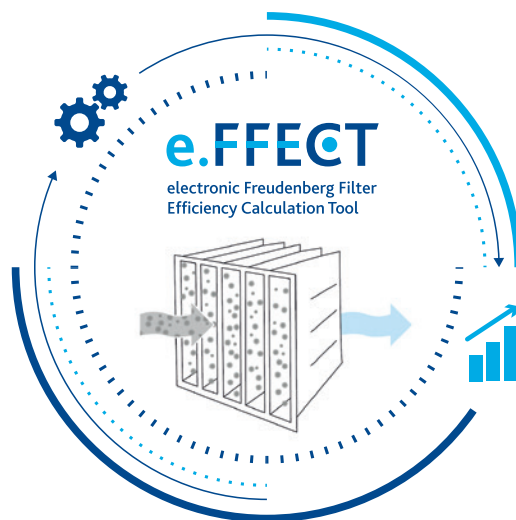
### What is PM?

PM = Particulate Matter

The definition goes back to the "National Ambient Air Quality Standards for Particulate Matter" of the US Environmental Protection Agency (EPA).

The mass concentrations PM1, PM2,5 and PM10 are usually used as the unit of measurement for fine dust. Simply put, these are:

- PM10 = mass concentration of all particles  $\leq 10 \mu\text{m}$
- PM2,5 = mass concentration of all particles  $\leq 2,5 \mu\text{m}$
- PM1 = mass concentration of all particles  $\leq 1 \mu\text{m}$



### Tailored to your needs

The most efficient filter solution is thus selected according to your individual requirements as well as the actual conditions on site. Excellent comparison possibilities give you full transparency and guarantee the creation of a tailor-made air intake system.

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**The plus for our customers:**

- Location and requirement-specific selection of the filtration solution
- Full transparency and comparability thanks to structured calculation protocol
- More powerful filtration solution
- Reduced downtime and maintenance requirements
- Cost savings through individually optimized solution

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Ask the filtration specialists, to formulate your needs and together we can decide on the degree of purity of your individual air intake system.

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