PALAS®

RESP-AER-METER

EXHALATION MEASURING DEVICE FOR AEROSOL PARTICLES

One step ahead of the virus

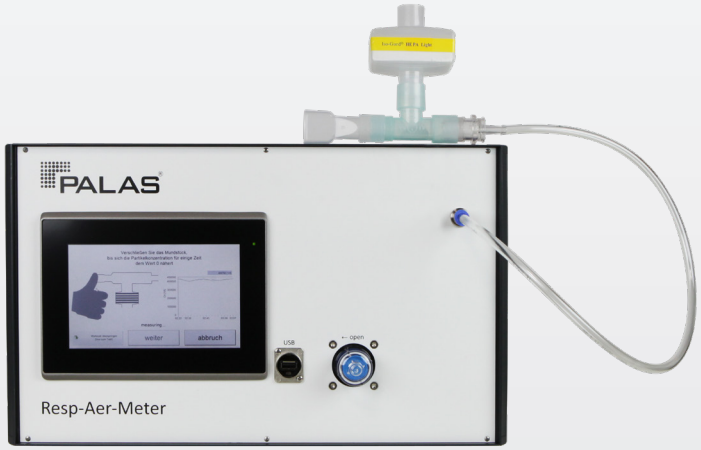
Made in Germany

What is the Resp-Aer-Meter?

Some diseases, such as Covid-19, are transmitted via exhaled aerosols. In its profile on coronavirus, the Robert Koch Institute describes the role played by aerosols when people talk, cough or sneeze. For example, when a large number of people get together in inadequately ventilated indoor spaces.

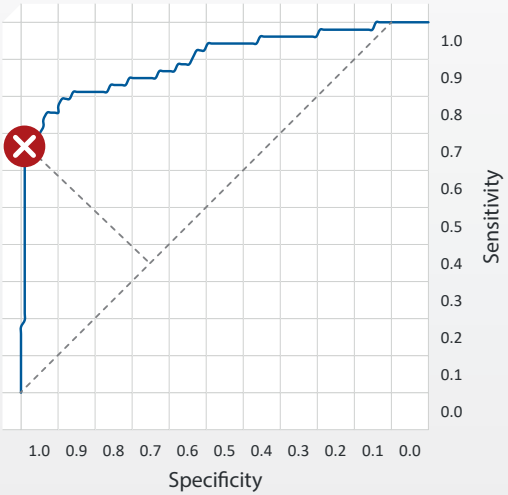
The Resp-Aer-Meter determines the particle concentration in the air you breathe. The device quickly and accurately measures the number and size of aerosol particles. As a result, it detects people who are exhaling potentially infectious particles.

To take the measurement, a person breathes into the Resp-Aer-Meter.
The evaluation takes place immediately with the device showing how many particles of what size are present in the breath. The number of particles serves as an indicator for possible disease in the tested person.



One step ahead of the virus

The **Resp-Aer-Meter** was the subject of a scientific study involving over 300 subjects. Approximately 120 people were infected with Covid-19. The study investigated the extent to which the **Resp-Aer-Meter** could detect infected individuals.



The values are shown here in an **ROC curve**, with sensitivity (true positive rate) on the y-axis and specificity (false positive rate) on the x-axis.

The **area under curve** (AUC) of the ROC curve is a measure of how well the exhaled aerosols perform as an indicator of respiratory infection (COVID-19 in this case).

The results:

- Exhaled aerosols are very suitable for detecting patients with respiratory diseases: This is made clear by the high AUC of 0.8951.
- The steep slope of the ROC curve shows that the particle count is very well suited to distinguish infected from non-infected persons.
- A threshold value enables a quick, clear statement as to whether a person is infected (yes/no statement comparable to a PCR test).
- Furthermore, an output of the **Resp-Aer-Meter** is an individual false positive rate.

On the trail of the superspreaders
Resp-Aer-Meter Infection Guard

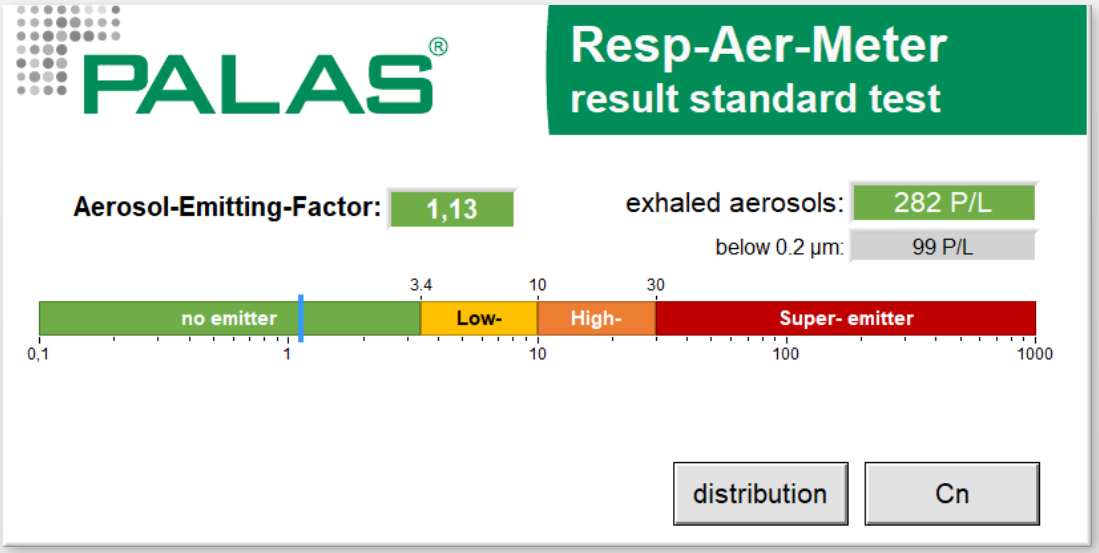
Sport events without fans on-site are less exciting and less fun. However, at least you can watch a soccer game, or a tennis match live on TV or Internet. But what if one of the athletes or a whole team is not able to participate due to illness? That is why every measure that helps to reduce the infection risk in sports should be taken.

According to the latest scientific studies, a positive antigen test is not sufficient proof that an infected person might also pass on the coronavirus. Nobody can be infectious if they do not exhale virus-laden particles. Superspreaders or superemitters, on the other hand, are people who have a particularly high number of such pathogens in the air they breathe. They are therefore considered to be particularly infectious.

The **Resp-Aer-Meter Infection Guard** helps to identify respective persons and corresponding infection risks among athletes. This allows to initiate appropriate safety measures.

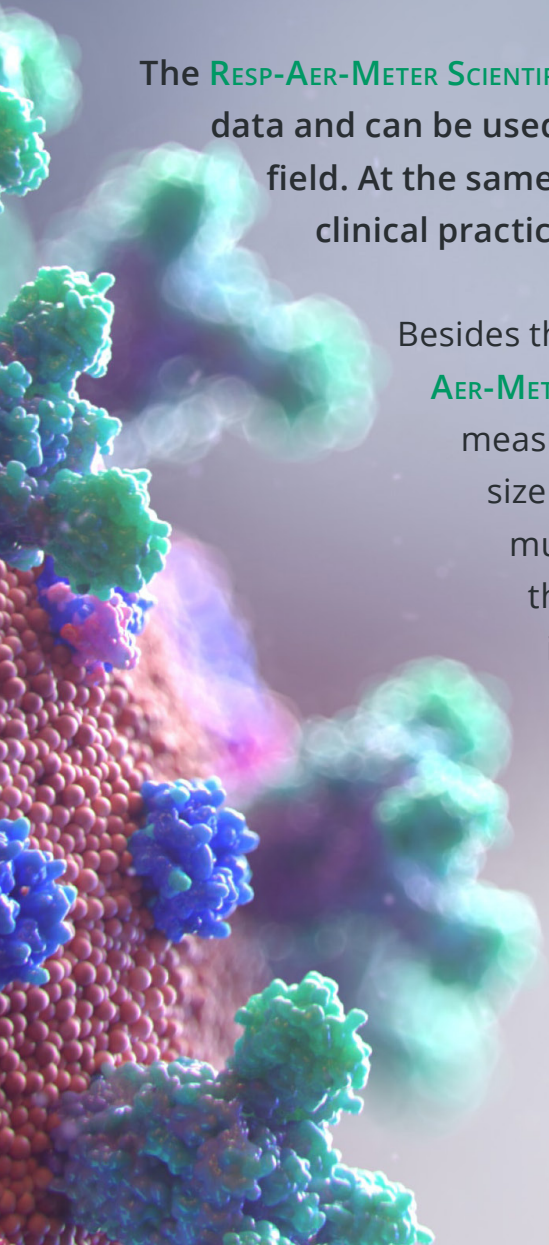
How does the Resp-Aer-Meter Infection Guard work?
A person breathes into the device and the aerosol concentration of the breath is measured.

The evaluation takes place immediately, with the device determining how many particles of what size are present in the breath. This serves as an indicator for a possible disease. If a certain value is exceeded, the person being tested is considered to be infectious and can therefore be isolated from the group before infecting others.



Results shown on the display

For science
Resp-Aer-Meter Scientific

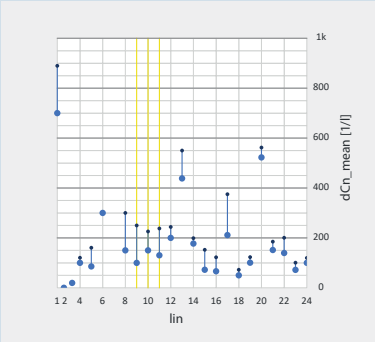


The Resp-Aer-Meter Scientific offers a wide range of additional information and data and can be used for scientific applications, for example in the medical field. At the same time, the device can be easily integrated into everyday clinical practice.

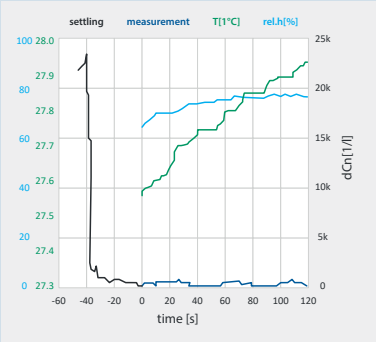
Besides the detection of a potential superspreader, the Resp-Aer-Meter Scientific offers access to a wide range of other measurement data, such as number of particles, size and size distribution, time course, measurement times, and much more. In addition, many parameters, such as the measurement duration or limit values can be set individually.

The device, which has a very high resolution, was specially developed for the detection of exhaled particles in the size range from 0.15 µm to 10 µm. The optical sensor uses a polychromatic light source that generates a precisely defined optical measurement volume. In addition, the temperature and relative humidity in the collected air are also measured and taken into account.

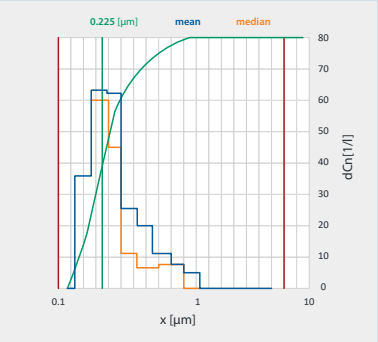
The **Breath Viewer** post-processing tool makes it easy to perform a comprehensive statistical analysis of the data from several different measurements. It displays them graphically and allows filtering and sorting as well as subsequent changes to certain evaluation parameters. This also enables adaptations to new variants and diseases.



Comparison of different measurements



Time representation of a measured value



Size distributions

Resp-Aer-Meter Scientific

- Do infectious respiratory diseases differ by exhaled particle size distribution?
- Is an increased particle concentration in the breath due to a specific particle size range?
- How do disease variations or personal characteristics (age, BMI, previous diseases...) influence the outcome?

Palas® is a leading developer and manufacturer of highprecision instruments for the generation, measurement and characterisation of particles in air.

With more than 30 active patents, Palas® develops technologically leading and certified fine dust and nanoparticle analysers, aerosol spectrometers, generators and sensors as well as related systems and software solutions. Palas® was founded in 1983 and employs more than 100 people.

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