AGK 2000

Solid aerosols from suspensions, solutions and biological agents

Solid aerosols from suspensions and solutions, such as NaCl and KCl, are needed for many applications in research, development and quality assurance.

Several standards specify NaCl or KCl aerosols as test aerosols for the development and comparison of filter media and filters.

For test aerosols to be worth their name, their particle size distribution and particle concentration have to remain constant throughout the testing period.

Furthermore, the particle size distribution and concentration must be repeatable.

A specially developed nozzle ensures that these requirements are fulfilled by preventing salt crystals from crystallising at the nozzle exit.

Thus it is possible to make repeatable adjustments to the particle size spectrum, in the range from approximately 5 nm to 15 µm, depending on the solution concentration.

Optionally pressure-resistant up to 10 bar.

Advantages:

- Excellent short-term and long-term dosing consistency
- Widely adjustable particle size range
- Easy filling of the reservoir
- Large reservoir (500 cm^3)
- Robust design, proven in industrial applications
- User-friendly operation
- Reliable function, high level of repeatability
- Low maintenance
- Reduces your operating expenses

Example applications:

- Filter industry:
    - Car interior filters
    - ASHRAE room air filters
    - Engine air filters
    - Respiratory filters
- Chemical and pharmaceutical industries
- Generation of tracer particles
- Flow visualisation
- Aerosol research

Technical parameters:

- Max. particle concentration: approx. 10^7 P/cm^3*
- Particle size spectrum: approx. 5 nm–15 µm*
- Particle material: suspensions, solutions, biological agents, liquids
- Dosing time: > 8 h
- Volume flow rate: 3–10 l/min for AGK 2000
- Volume flow rate for optional drying system 6–20 l/min
- Weight: approx. 3 kg

* depending on the solution concentration and the particle material

Accessories:

- Quick connector
- Manometer
- Transportation case

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AGK 2000 with drying system
Quality in detail

Function

Typically, binary nozzles are used for dispersing fluids, suspensions and solutions. For dispersing salt solutions, conventional atomisation principles such as the Collison nebuliser, which was also built by Palas®, are not suitable, as salt crystals precipitate at the exit of the nozzle and cause a partial clogging of the nozzle system.

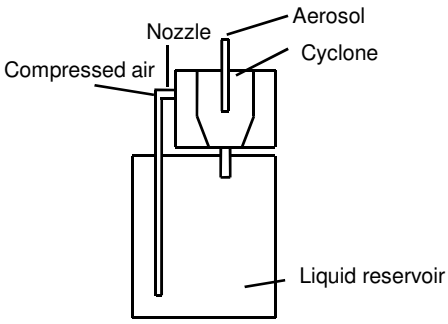


Fig. 1: Schematic layout of the AGK 2000 with cyclone

A specially developed nozzle from Palas® makes it possible to atomise salt solutions with a high level of dosing constancy.

Drying system

Fig. 2 shows the drying system for drying solid aerosols. This system has proven itself in applications worldwide. With the intelligent combination of the cyclone for separation of large drops and the special drying system, practically dry salt particles are produced.

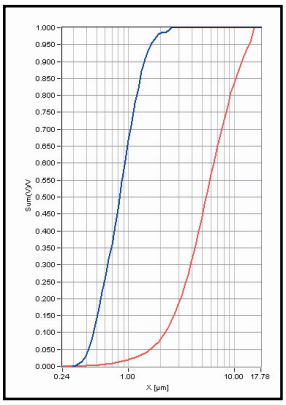
Fig. 2:
AGK 2000 and drying system
(straight version; others on request)

Advantages of the drying system:

- Extremely long service life
- No silica gel particles, no particle production
- Failure-free operation
- Reduces your operating expenses
- Low maintenance

Measurement data:

Dependence of the particle distribution on the solution concentration (Fig. 3 and 4).
Measurement device: welas® digital system from Palas®



Solution concentration
20% KCL

0.15% KCL

Fig. 3: Comparison of the volume distributions of the 0.15% and 20% KCl solution in water

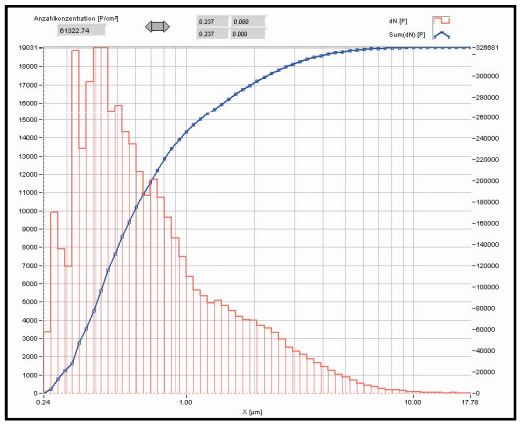


Fig. 4: Number distribution of the 20% KCl solution

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