



[www.grimm-aerosol.com](http://www.grimm-aerosol.com)

## Aerosol Generators

### Portable & Stand-alone Dust Generators

#### Advantages:

- ✓ Variable concentrations
- ✓ Variable size ranges
- ✓ Integrated diluter\*
- ✓ Integrated flow control\*
- ✓ Automatic operation
- ✓ Stand-alone units
- ✓ Automatic operation



#### Aerosol Applications as:

- dry feeders
- resuspension of liquids
- Monodispersed sizer
- Micro sizer
- Nano sizer
- Filter Tester
- System calibrations

**GRIMM AEROSOL** offers a line of individual aerosol generators and dispersers for producing mono-dispersed or poly-dispersed aerosol, solid or liquid particles, in the range from 0.6 nm to 20  $\mu\text{m}$ .

**This is a complete line** of generator systems that starts from sub-nano particles and ends with large dry powder dust aerosol generators and all kind of required accessories.

Whatever your aerosol generation needs, Grimm is likely to have the right instrument for the job! The picture above shows the **universal generator**, model 7.811 with exchangeable atomizers.

Our models 7.801 to 7.821 are designed to **aerosolize liquids**, in which solid mono- or polydispersed particles are suspended (also small spores and bacteria, suspended in liquid, can be dispersed as an aerosol).

Our models 7.861 to 7.881 are designed to **generate aerosols by combustion** with solid mono- or polydispersed particle size characteristics. These particles are all in the

NANO range and can be supplied in high concentrations.

Models 7.841 to 7.851 **disperse dry powder**, consisting of solid, mono- or poly-dispersed particles.

The size range goes from 1  $\mu\text{m}$  upwards to 20  $\mu\text{m}$ . All systems models 7.811 to 7.851 have in common that you have to have a known aerosol you supply to the generator.

## Aerosol Generators for Aerosols from LIQUID CARRIERS

The **GRIMM model 7.811** is designed to aerosolize different material in liquids, beginning from salt in water to solid mono- or polydispersed particles (such as latex, glass spheres, etc.) The size range depends on the supplied suspension, but can vary from a few nanometres upwards a few micrometres.

This generator is suitable for nebulisation of various liquids, e.g. DOP, Emery 3004, DEHS and salt solutions. It can also be used to disperse PSL.

Depending on the application this generator type is used for the calibration of systems / instruments or upstream from a test filter.

The **7.811** has an adjustable air flow with indicator for concentration changes as well as an integrated dilution flow system with a silica gel dryer. The system works with 110/220V.



The above picture shows the unit space for six interchangeable atomizers, so the change from one size band (or material) to the next is done very easily. The dried, well mixed particles flow pulse free and continuously from the external expansion vessel.

The **models 7.820 and 7.822** generator produces aerosols with known properties in accordance with the guideline **VDI 3491**.

This special model facilitates generation of aerosol into pressurised vessels (up to 10 bar). The liquid reservoir is inside the chassis.

Its design ensures a highly stable particle size distribution and concentration with high reproducibility and a high aerosol output.

The generators have to have a known aerosol you supply to the generator. It can be generated and supplied as model 7.820 with pump or for external compressed air supply as 7.821.



Above the picture of the 7.861 unit

The **models 7.861 and 7.862** aerosol generators produce nano aerosols from chemical and/or biological combinations.

They work on the principle of electro spray (a unit is shown at the left side).

All models on this page commonly used for filter efficiency studies help our optical Spectrometers or ultra fine monitors (SMPS+E and SMPS+C) to classify size ranges, so the filter performance and their most penetrating point can be controlled.

## Aerosol Generators for Aerosols MADE BY COMBUSTION

The **GRIMM model 7.860** is designed to burn tungsten (and/or other material) to generate ultra fine nano size particles in high concentrations.

It consists of a selectable air flow in the measurement chamber, a selectable air flow in the 1<sup>st</sup> dilution channel and a 2<sup>nd</sup> adjustable air flow in the 2<sup>nd</sup> dilution channel. The unit operates with 220V.

The size range depends on the supplied electric current, the outcoming concentration can be varied by the integrated dilution.

All air flows are generated by an external compressed air supply.

This generator is very suitable for the generation of highly charged nano (and sub-nano) particles to be used directly in/on a fast differential mobility analyser (DMA) combined with a very sensitive Faraday Cup Electro-meter (FCE).



The **model 7.881** aerosol generator produces nano aerosols by the combustion of gases (such as methane, etc.) Here size range depends on the supplied oxygen for combustion, the gas pressure and suspension, therefore the size range can vary from a few nanometres to hundred and more nanometres.

This portable 7.881 unit (right picture) was designed to **simulate combustion processes** and give the user the ability to expose his test material with real soot.

It has an adjustable air flow with indicator for concentration changes as well a viewing window to observe the combustion in real time. The system works with 110/220V.

The model **7.885 for PMP** (not shown) works on the same principle, but has a smaller flame and a defined mixing chamber, so specific size ranges are preset.

In this case it is possible to select between the 23 nm and the 41 nm size range, as required in the Particle Monitoring Program (PMP) of the Euro 5 for the test of Diesel filters.



## Aerosol Generators for DRY POWDER as Carrier

The **GRIMM model 7.851** is designed to aerospray different dry powder materials (such as the US ACFTD or the European DOLOMIT) in the air.

Depending on the size distribution the generators high vary, due to the fact that larger particles are quite hard to keep in the air.

The 7.851 is therefore a tower type generator, injecting the powder with a defined concentration in the towers head. There particles will sediment and then pass the outlet nozzles, where the test instruments are connected.

The picture below shows the unit with space for sample ports for the OPCs. This concept permits an automatic computer controlled aerosol supply as well as a data collection of the attached Optical Particle Counters (OPC) standing on the black table.



This **7.851 stationary generator** is a perfect tool for calibration of OPC, since the size range can vary from a few hundred nanometres to large micrometer particles.

The models **7.840 and 7.841** aerosol generators produce large quantities of aerosols with known properties in accordance with the guideline **VDI 3491**. These special models facilitate generation of aerosol into pressurised vessels (up to 10 bar).

Its design and technical solution warrants constant particle size distribution as well as particle concentration high reproducibility and a high aerosol output.

The reservoir is arranged inside the chassis of the 7.840 and an even larger one in the model 8.841



Dealer:

*The European Leader in Particle Measurement Technology*

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