



® Knowledge Beyond Measure.

# Atomizer Aerosol Generator

Model 3079A



## A self-contained atomizer that generates polydisperse, high-concentration test aerosols

The Atomizer Aerosol Generator 3079A is a new, innovative aerosol generator that produces aerosol particles in the submicrometer range. It generates polydisperse aerosol by atomizing a solution. It will generate monodisperse particles by atomizing monodisperse particles in suspension. The mode of the particle size produced is between 0.2 and 0.3 micrometers. Particle concentration can be changed by adjusting the flow through the atomizer.

The model 3079A is portable and of a very compact and rugged design. A built-in, low-noise compressor provides the compressed air needed for the atomizing process. The model 3079A uses a completely new atomizer head made entirely of stainless steel. The atomizer head and the glass vessel containing the solution are protected by a hinged cover that opens easily.

### Applications

- Filter testing
- Particle-sizing instrument evaluation
- LDV seeding
- Wind-tunnel seeding
- Laminar-flow box testing
- Acceptance tests
- General-purpose test-aerosol production

### Features and Benefits

- Concentrations up to  $10^8$  particles/cm<sup>3</sup>
- Adjustable flow rate from 1.2 to 5.0 L/min
- Highly portable, self-contained design



## Specifications

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### Mode of Operation

Atomizer with twin-stream injection nozzle and baffle

### Particle Size, $d_{mode}$

0.2 to 0.3  $\mu\text{m}$  (for DES)

### Particle Concentration

$>10^8$  particles/cm<sup>3</sup>

### Particle Type

Liquid DES (nontoxic), DOP, PAO, paraffin  
Solid PSL latex particles, NaCl, other salt solutions

### Flow Rate

1.2 to 5.0 L/min

### Maximum Counter-Pressure

20 kPa (0.1 bar)

### Dimensions (L x W x H)

30 cm x 12 cm x 19.5 cm (11.8 in. x 4.7 in. x 7.7 in.)

### Weight

4.8 kg (10.6 lb)

### Power Supply

110 to 240 VAC (included)

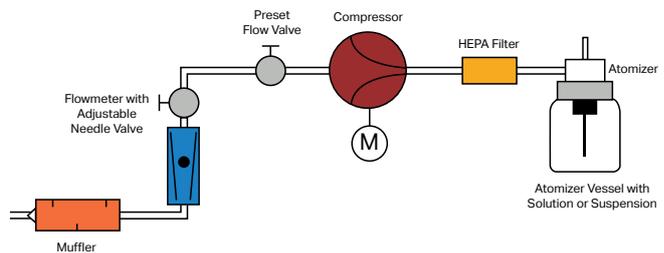
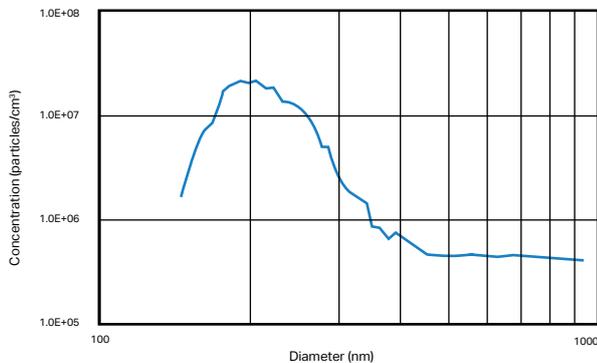
### Operation

The model 3079A uses a compressed air atomizer with a stainless-steel twin-stream injection nozzle to produce a polydisperse aerosol. A built-in compressor provides the required compressed air. A flowmeter with a needle valve allows the user to set the flow rate. The operator varies particle concentration simply by adjusting the valve.

The compressed air passes through a high-efficiency filter, where contaminants are removed from the air flow. The air is then expanded through the atomizer nozzle, producing a high velocity jet. As a result of the Bernoulli effect, the aqueous solution is drawn from the atomizer vessel. Subsequently, a high-velocity air flow breaks up the solution into droplets and suspends the droplets in the flow.

The wall of the atomizer vessel serves as a baffle. Large droplets impact on it and are removed from the flow. This leads to a resulting particle size predominantly below 1 micrometer. The fine droplet aerosol exits the Model 3079A through the aerosol outlet on top of the atomizer.

DES test aerosol produced by the model 3079A, measured with TSI's series Scanning Mobility Particle Sizer™ (SMPS™) Spectrometer 3936



### To Order

#### Atomizer Aerosol Generator

Specify	Description
3079A	Atomizer Aerosol Generator

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