

Chemical and Biological Aerosol Simulants

Performance testing for air samplers & detection instruments

Features

- Compact
- Easy to use
- Easy to transport
- Simulants for toxins, spores, chemical/flammable gas
- Repeatable dosage
- Long life: over 100 shots
- Nontoxic

Application Areas

- CBW/TIC gas detectors
- UV biotriggers
- Air samplers
- Lateral flow immunoassays
- Automated bioanalyzers
- Postal room biothreat systems
- Product demonstrations

QuikChek™ Sources is Research International's aerosol simulant, designed to administer a small aerosol challenge to equipment used in chemical and biological collection, detection, or identification. Many situations arise where it would be useful to have a method for qualitatively determining that equipment is working. With gas detectors, a small pulse of gas is commonly administered to the equipment before it is taken out into the field to see if an upscale reading is obtained. This safety measure is called a "bump test" and shows that the equipment is operational.

For performing both chemical and biological bump tests, we provide QuikChek™, a medical inhaler that has been charged with a nontoxic pressurized propellant, and in the case of biological bump tests, a small amount of simulant powder. When the inhaler canister base is depressed, a fixed volume of propellant and any suspended aerosol material



present is discharged as a turbulent jet. Some applications include:

- Testing air sampling and extraction equipment
- Testing ultraviolet biological aerosol detectors such as Research International's Tac-7C® aerosol detector
- Testing bioidentification devices such as lateral flow immunoassays (tickets)
- Testing gas detectors that have the propellant used in this product in their gas library
- Studying aerosol dispersion in various settings
- Equipment demonstrations for customers

The propellant used in RI's QuikChek aerosol simulants is the same propellant used in most medical inhalers. It is of a high purity, with minimal oil and other contaminants. A special high accuracy metered-volume valve is used which provides an output dose that is consistent to within 5% from shot to shot.

Since the simulant materials are physically suspended in the propellant, it is essential that the dispenser be well shaken before each use.

The check source size and shape minimizes issues with airline personnel who otherwise prefer to confiscate all pressurized products found in carry-on luggage.

QuikChek™ Aerosol Simulant Specification

Number of sample discharges	Greater than 100 per sample canister
Propellant	High purity tetrafluoroethane
Typical propellant loading per canister	18 ml
Volume discharged per shot	100 μ l
Variation in volume discharged	+/- 5%
Typical simulant loading per canister	50 mg (other loadings on special order)
Simulant container	Aluminum medical inhaler canister
Dimensions	Boxed: 4x2x2 in. (102x51x51 mm) Unboxed: 3.5x1.13x1.75 in. (89x29x45 mm)
Weight	Boxed: 1.92 oz. / 54.4 g Unboxed: 1.36 oz. /38.6 g

AVAILABLE SIMULANTS

Contents	Mass median aerodynamic diameter, microns, typ.
ISO 12103-1, A2 Arizona Fine Test Dust	1.0 - 1.5
Bacillus globigii, ATCC 9372, var. Niger	3.1
Micronized silk	2.9
Ovalbumin¹	1.5
Fluorescent yellow fluorophore²	2.6
Fluorescent orange fluorophore²	2.9
Propellant (R-134a, tetrafluoroethane)³	No significant aerosol content

Research International reserves the right to change specifications without prior notice.

Notes:

1. From chicken egg white.
2. Organic fluorophore materials showing strong emission under long wavelength UV excitation. Solid solutions of fluorescent dyes in melamine formaldehyde sulphonamide resin. Fluorescent pigments are currently in use in children's toys in the U.S. and elsewhere. Specific gravity is 1.37.
3. For testing gas detectors, etc.



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