

# The Zefon NRD Sampler

The Zefon Personal Nanoparticle Respiratory Deposition (NRD) sampler is designed to size-selectively collect nanoparticles with an efficiency that matches their deposition in the respiratory tract system.<sup>1,2</sup>

Its lightweight, disposable design allows it to be worn easily for personal exposure monitoring while providing the convenience of a preloaded ready to use product.

## Features

- Engineered to collect nanoparticles likely to be deposited in the respiratory tract
- Filters out larger unwanted particles (>300nm)
- Lightweight; Designed to be worn for personal exposure sampling
- Used with a standard 25mm aluminum cyclone
- Compatible with personal sampling pumps capable of a 2.5LPM flow rate at 15" H<sub>2</sub>O backpressure
- Can be analyzed using lower cost chemical analysis vs electron microscopy



1. A Personal Nanoparticle Respiratory Deposition (NRD) Sampler

Lorenzo G. Cena, T. Renée Anthony, and Thomas M. Peters, Environmental Science & Technology 2011 45 (15), 6483-6490

2. International Commission on Radiological Protection (ICRP).

Human Respiratory Tract Model for Radiological Protection, Publication 66; Elsevier Science, Ltd.: Oxford, U.K, 1994.



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Patent Pending

AM0006 Rev 1

## How it works:

### Stage 1

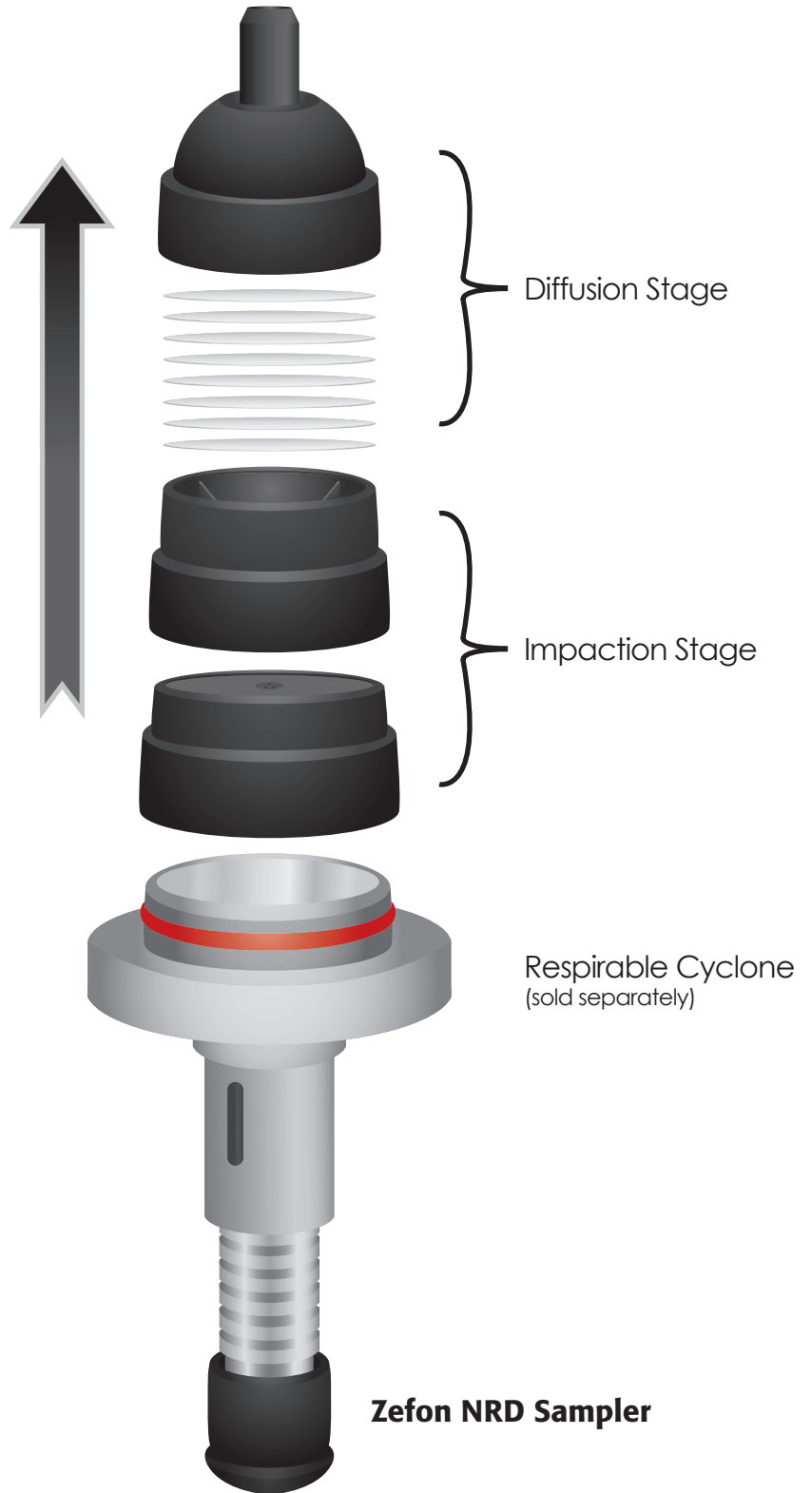
A respirable aluminum cyclone (Zefon #ZA0075) at a flow rate of 2.5 LPM is used to remove particles larger than 4µm in size.

### Stage 2

Air passes through an impaction stage where particles larger than 300nm are removed using an impaction plate.

### Stage 3

Air passes through a diffusion stage consisting of a series of Nylon filters, collecting particles <300nm.



Product Specifications	
<b>Housing Material</b>	Carbon Filled Polypropylene
<b>Filter Material (diffusion stage)</b>	Nylon
<b>Collection Efficiency</b>	<300nm with an efficiency designed to match the efficiency at which particles deposit in the respiratory tract.
<b>Cut-Point (cyclone stage)</b>	4µm
<b>Cut-Point (impactor stage)</b>	300nm
<b>Flow Rate</b>	2.5 LPM

Ordering Information	
PART#	DESCRIPTION
<b>ZNRD001</b>	Zefon NRD Sampler
<b>ZA0075</b>	Zefon 25mm Aluminum Cyclone
<b>ZA0061</b>	Zefon Cassette/Cyclone Holder
<b>ZA0011</b>	Zefon Aluminum Cyclone Calibration Adapter
<b>ZA0046</b>	Cassette Opening Tool