

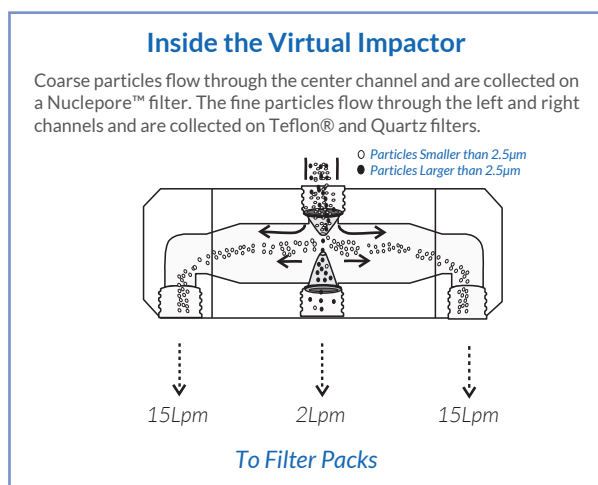
Versatile Air Pollutant Sampler (VAPS)

SIMULTANEOUS COLLECTION OF COARSE AND FINE PARTICLES | URG-3000K

URG's Versatile Air Pollutant Sampler (VAPS) allows for the simultaneous measurement of a variety of air quality parameters. The virtual impactor used in the VAPS is a modification of the virtual impactor system approved by the USEPA for compliance monitoring of PM-10. The VAPS virtual impactor operates at 32Lpm. The coarse particles travel straight through the center channel and are collected on a filter. The fine particles travel through the left and right channels. Annular denuders on the left channel collect any reactive acidic and basic gases. A polyurethane foam sampler (PUF) on the right channel collects higher molecular weight organic vapors.

Uses

- Establishing preliminary assessment of air quality to serve as a monitoring plan for a full-scale study
- Providing data for identifying major sources of contaminants in the air through receptor modeling
- Determining the impact of particulate nitrate and sulfate on visibility
- Quantifying the impact of acidic and basic air pollutants on issues related to acidic rain
- Enhancing our understanding of atmospheric chemistry



Research

- Determining the effects of pollutants on visibility at national parks
- Measuring acidity of airborne particles from residential wood burning
- Collecting samples near incinerators in a health effects study
- Researching lung dysfunctions
- Airborne sampling of oil fire plumes to determine emissions close to the source
- Measuring exposure assessment at power plants

Industry

- Determining respiratory effects of emissions from a waste burning industry furnace
- Comparing emissions of a biomedical waste combustor before and after installation of air pollution control devices

State Government

- Collecting aerosols to analyze for trace metals, sulfate and polynuclear aromatic hydrocarbons
- Developing full-scale human exposure studies



Versatile Air Pollutant Sampler Component Details

URG-3000-02BA, Computerized Sampling Pump

Specifications & Features:

- Three Adjustable Flow Rates: 1-5Lpm, 2-20Lpm, 2-20Lpm
- Volumetric Flow or Active Volumetric Flow Options Available
- 7 Day Programmable Timer
- Available as 115VAC or 220VAC
- Efficient, Clean, No Heat Build-Up
- Weather Resistant for Outdoor Use
- 75 lb



Chemical Species Collected				
Gases				
HCHO	HF	NO ₂	O ₃	NO _x
HCOOH	SO ₂	CH ₃ COOH	HNO ₂	H ₂ O ₂
PAN	Nicotine	PAH	NH ₃	Pesticides
Particulate				
NO ₃ - NH ₄ ⁺	SO ₄ ⁼ HNO ₂ ⁻	NO ₂ - H ⁺	SO ₄ ⁻ Nicotine	
Hazardous Air Pollutants (HAPS)				
#78 Ammonia (NH ₃)	#98 Fluoride (F ⁻)	Nitrites (NO ₂ ⁻)		
Hydrochloric Acid	Hydrogen Fluoride (HF)	Fluorine (F)		
#126 Sulfuric Acid (H ₂ SO ₄)	#65 Hydrogen Fluoride	#230 Nitrates (NO ₃ ⁻)		
Once collected, the pollutant concentrations are quantified by Ion Chromatography Analysis, Colorimeter Auto Analysis, Thermal-Optical Analysis, GC/MS, GC/FID, or GC/ECD, PIXIE, XRF and Flame Absorption Spectroscopy				

47mm Teflon® Filter Packs

Design ensures sample integrity and allows for easy transportation to and from lab. Available with 1-4 stages to allow for sampling on multiple filters at once.



Polyurethane Foam Sampler

Collects semi-volatile and condensable organic Polynuclear Aromatic Hydrocarbons (PAHs).



PM-10 Inlet

Used prior to the cyclone to minimize losses of particles less than 10µm at high wind speeds and to reduce intake of rain and insect debris.



Dry Gas Meter

Mechanically counts liters that have passed through the annular denuder system.

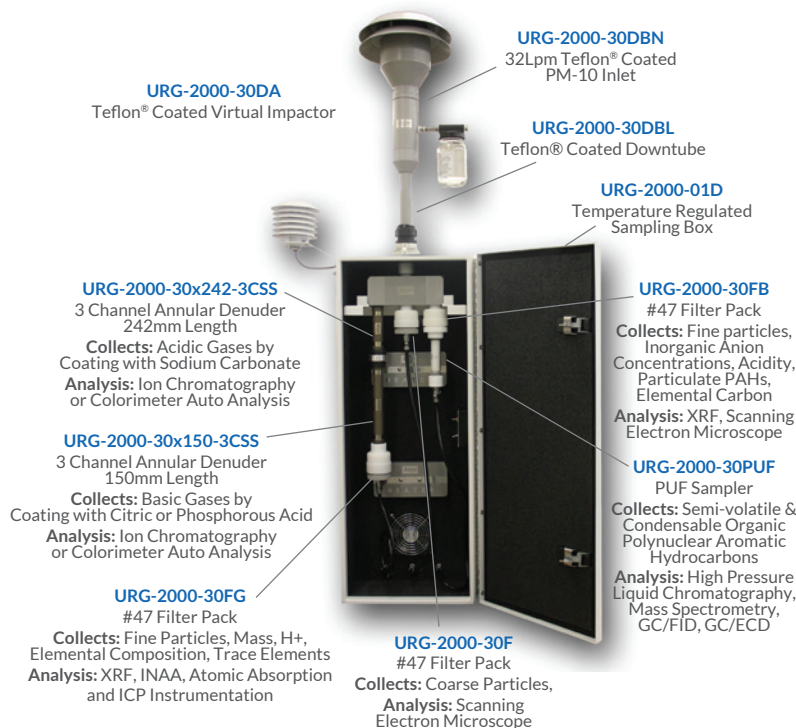


Annular Denuder

Multi-channel configuration provides additional surface area to expand the denuder's capacity to absorb the gas species of interest. URG's annular denuders do not easily break because they are sealed in a Teflon® coated stainless steel sheath.



URG-3000K Internal Components



Additional Literature Available

- Complete URG Parts Catalog
- Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air - IO-4.2 Determination of Reactive Acidic and Basic Gases and Strong Acidity of Fine Particles, USEPA publication 625/R-96/01a
- URG Systems Overview
[Download at www.URGcorp.com](http://www.URGcorp.com)
- Compilation of research papers documenting URG Air Sampling Instruments from 1983 to present
[Contact URG to receive by email](#)