

Dichotomous Air Sampler

Description

The dichotomous air sampler is a dual-filter air sampler for the simultaneous collection of the fine (PM_{2.5}) and the coarse (PM_{10-2.5}) particles contained within PM₁₀. Split flow configuration of the virtual impactor allows a PM₁₀ aerosol to be separated into fine particles and coarse particles for subsequent collection onto 2 separate PTFE membrane filters.

Applications

The dichotomous air sampler allows differential mass determination between the fine and coarse fractions contained within inhalable particulate matter. This instrument also allows the user to perform chemical analysis comparison of the two size fractionated samples. These unique applications are very important to those interested in source identification or subsequent human health studies. 16.7 LPM PM₁₀ Aerosol.

Technology

The basic premise of this instrument is the dual flow configuration. This proven technology utilizes two flow controlled channels that adjust the flow to a constant volumetric flow rate within each channel. Information from standard pressure and temperature sensors is measured, stored and used to make the corrected flow rate possible. A well engineered user interface and touch screen display allow the operator complete control over this instrument with very little training. Flow data, event markers, pressure and temperature data can be downloaded from any internet connection via an on-board IP address. An optional weather station is available to monitor and log air temperature, barometric pressure, relative humidity, precipitation amount, wind direction and wind speed. All of this information is stored on a very large removable memory card. Traditional 47 mm filter cassettes and the classic PM₁₀ (16.7 LPM) inlet are used for their well documented reliability and user familiarity.

