US EPA and EuroNorm Equivalency Method Certifications

Hourly PM$_{10}$, PM$_{2.5}$, and PM$_{10-2.5}$ mass measurements and sample collection all-in-one instrument

Matches the US EPA Federal Reference Method samplers

Designed to minimize common uncertainties in PM measurement

Atmospheric Stability Assessment

Free Customer Support by telephone and email for the life of the instrument
Teledyne Advanced Pollution Instrumentation is proud to announce a new system for the continuous automated monitoring and sampling of particulate matter (PM) contained in ambient air. The Model 602 Beta\textsuperscript{\textit{PLUS}} instrument combines field-proven beta attenuation analysis with dual-channel, sequential sampling technology yielding simultaneous PM\textsubscript{10}, PM\textsubscript{2.5} and PM\textsubscript{10-2.5} mass concentration results every hour. The system is the first to receive US EPA FEM Certifications for all three parameters (PM\textsubscript{10}, PM\textsubscript{2.5} and PM\textsubscript{10-2.5}) in a single instrument.

**Dual-channel Sequential Sampling**

- Two separate and parallel sampling channels
  - Can be configured with a variety of size selective inlet options (TSP, PM\textsubscript{10}, PM\textsubscript{2.5} and PM\textsubscript{1})
- Flexible Flow Rate Options
  - 1 m\textsuperscript{3}/hr or 2.3 m\textsuperscript{3}/hr
- 47mm diameter sample filters
- Variety of sampling media
  - (Teflon\textsuperscript{\textregistered}, quartz, glass fiber, etc.)
- Simple handling with sample filter cartridges and loader/unloader magazines

The two flow lines are independently controlled and operate simultaneously. Unlike some other continuous PM monitors, the Model 602 Beta\textsuperscript{\textit{PLUS}} instrument provides a completely representative sampling period, actively sampling the air for >57 minutes in hourly mode. Sample filter mass analysis proceeds immediately following the sampling period without interruption or downtime. A full sample filter magazine will last from 16 – 48 days depending on the instrument configuration.

Sample filters are housed in filter cartridges for simple handling and preservation should chemical speciation laboratory analysis be performed later. Filter cartridges are color coded for easy differentiation between channels.
Multi-step Analysis

- **Air Counts**
  Assess changes in air density

- **Dark Counts**
  Measure background radiation in air

- **Blank Counts**
  Measure sample filter prior to sampling

- **Natural Counts**
  Measure background radiation in sample

- **Collect Counts**
  Measure mass of collected sample

The Model 602 Beta\textsuperscript{PLUS} instrument provides unprecedented agreement with the Reference Method by eliminating uncertainties in the sample mass measurement. The patented, multi-step analysis process independently assesses interferences such as humidity and background radiation during every cycle.

The natural background radioactivity measurements can be used for providing information about Atmospheric Stability. Combining this information with local air pollution measurements can help determine factors which influence air pollution events.

Data collected in Bakersfield CA during February 2011
Model 602 BetaPLUS
Particle Measurement System

Quality Control & Quality Assurance

- Two (one per channel) built-in flow transfer standards for automatic flow span checks
- Automatic leak and two-point beta span checks
- Active pneumatic integrity monitoring
- Active analytical component monitoring
- User-definable alarm thresholds for QC parameters

Connectivity and Remote Access

- Digital communications
- Remote communications software

All raw and calculated data are stored within the instrument for diagnostics and review. Data can be accessed locally or remotely through an external data logger or the supplied 602 BetaPLUS Manager.Net software.

Initial instrument data validation is performed automatically, with nearly 60 parameters measured and recorded per channel during each cycle. Immediate notifications can be given when the instrument performance has fallen outside of the users pre-defined limits, resulting in higher data quality and capture rates.

US EPA Federal Equivalent Method: PM₁₀ (EQPM-0912-205), PM₂.₅ (EQPM-0912-204) and PM₁₀₋₂.₅ (EQPM-0912-206)
EN12341-1999 and EN14907-2005: PM₁₀ and PM₂.₅ (Hourly and 24Hr Modes)

For more information about the Teledyne API family of monitoring instrumentation products, call us or visit our website at

www.teledyne-api.com

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