

COMBO PM10 & PM2.5 SAMPLER

ECOTECH MODEL AAS 271

BACKGROUND

In new air quality standard notified by Govt. of India where measurement of PM10 and PM2.5 dust is required with other pollutants to decide status of air pollution. So far samplers developed in India do not have provision for simultaneous sampling of PM10 and PM2.5 dust. Thus two samplers need to be operated simultaneously to know concentration of these pollutants in ambient air. This results measurement of these parameters expensive and difficult as significant efforts are required in transport of two samplers and their operation in field.

Ecotech realizes these limitations and took lead to develop impactors based Combo sampler for simultaneous sampling of PM10 & PM2.5 dust using single instrument.

Single stage impactor matching to European Union designs has been fitted in the Combo Sampler for PM10 measurement. This impactor removes dust greater than 10 microns from ambient air when sucked through it at constant flow rate of 2.3 m³/hr .

For sampling of 2.5 micron dust two stage impactors based on the USEPA standard designs (published in Federal Register 40 CFR part 50 Appendix L (updated in May 2002)) has been incorporated in AAS 271. This impactor removes dust greater than 2.5 microns from ambient air in two stages(first in Pm10 impactor and second in WINS impactor fitted in series) when air is passed through it at flow rate of 1.0 m³/hr

Ecotech AAS 271 is fitted with Thomas make world's best brushless and noiseless pump assembly of adequate capacity to generate needed sampling rates simultaneously for PM10& PM2.5 Impactor. Constant flow rates in both air stream are maintained through out sampling duration with the help of critical orifices. Pump assembly is equipped with heavy duty induction motor which ensures that sampling rate are not affected due to input voltage fluctuations.

AAS 271 is equipped with two digital flow Totalizer for recording exact volume of air sucked through filter fitted at out lets of single and two stage impactors.

Glass Microfibre filters of 47mm dia is used for PM10 sampling while PTFE membrane are used for PM2.5 sampling. All components of Impactor are made up of corrosion free metals which are fabricated with the help of CNC machines to ensure desired precision in the critical components of AAS 271 for accurate repeatable monitoring of Pm10 & Pm2.5 dust simultaneously.

Modular design of sampler, tubing and other fitments made this sampler simple and most suitable for simultaneous sampling PM10 & PM2.5. AAS 271 is easy to transport , operate can be used successfully in harsh Indian climatic conditions

Performance of Combo Sampler AAS 271 has been evaluated by operating it in parallel of two FRM USEPA certified reference samplers (one operated for Pm10 & another operated for Pm2.5) at National Environmental Engineering Research Institute (NEERI) Nagpur. The results given by combo sampler and FRM sampler are comparable. Thus the Pm10 & Pm2.5 values given by Combo sampler AAS 271 are reliable and approved by NEERI Nagpur.



IMPORTANT ADVANTAGES AND FEATURES

1. PM10 Impactor is matching with European Union Design(EN12341)
2. PM 2.5 Impactor is based on USEPA Published Standard Designs.
3. Sampler is suitable for measurement of PM10 & PM2.5 dust simultaneously (gravimetrically).
4. AAS 271 is compact portable & simple to operate with user friendly features.
5. PM10 & PM2.5 filters are 47mm diameter thus having low operating cost.
6. Pm10 dust collected on filter can be analysed for heavy metals (Pb, Ni & As etc) and also for Benzo(a)pyrene as per requirements given in AQ Standards.
7. Pump assembly is brushless and noiseless where no maintenance required
8. Sampler can run continuously up-to 24 hrs or more.
9. Sampling of PM10 & Pm2.5 dust is done at constant sampling rate of 2.3 m³/hr &1.0 m³/hr respectively
10. Filter holders fitting in the sampler are done such so that these are remain suspended in air thus not affected by heat of motor fitted in lower cabinet of the sampler .
11. Suitable for outdoor use with corrosion free lockable housing.
12. Inlets of PM10 & PM2.5 Impactors are omni-directional

All Ecotech products can be opened using single key. Rust free stainless steel hardware used in all Ecotech products

TECHNICAL SPECIFICATIONS:

Flow Rate	Pm10	: 2.3m ³ /hr (Constant Flow Maintained with the help of critical orifice)
	Pm2.5	:1.0m ³ /hr (Constant Flow Maintained with the help of critical orifice)
Particle Size		:Particles of 10 microns and below collected on standard glass micro fiber filter paper of 47mm diameter fitted below single stage impactor. While particles of 2.5 microns are collected in a separate 46.2 mm diameter PTFE membrane filter fitted at the bottom of WINS impactor of two stage impactor.
Pm10 impactor		: Single stage matching to European Design (according to EN12341)
Pm2.5 Impactor		: Two stage as per USEPA Published Designs(Federal Register 40 CFR part 50)
Flow Record		:Independent Flow Totalizers for Pm10 & Pm2.5 streams to record volume sucked through filters accurately.
Cabinet		:Two part modular, corrosion free, lockable & easy to transport.
Operation		:Up-to 28 hours continuously
Automatic Sampling		:A digital timer is provided to automate the operation of sampler
Time		:0 to 9999.99 hrs recorded on a Time Totalizer
Power Requirement		:Nominal 220V, Single Phase, 50Hz AC mains supply,400watts
Size and Weight		: 430 x 310 x 980mm, 36 Kg

WARRANTY

ALL ECOTECH PRODUCTS CARRY ONE YEAR WARRANTY



For pricing information and technical queries contact:

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