



Biogeochem Associates Ltd is an environmental consulting firm that is conversant and abreast with cutting-edge revolutions in the ever changing field of Environmental Sciences.

Our pool of Associates comprises of accomplished scientists who are familiar with the statutory and corporate requirements for doing environmental business in Nigeria.

Our approach to conducting environmental studies is project-specific, multi-disciplinary and aims at guiding both Client and regulators take informed decisions.



# BIOGEOCHEM ASSOCIATES LIMITED

## Innovative Air Sampling/Assessment

### 'PortaMini' – The Sampler

The PortaMini Air Sampler offers a versatile cost-effective solution for monitoring PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, and air pollutants. Compact, lightweight, battery operated and constructed from durable PVC, the PortaMini is ideal for all-weather sampling in remote or urban locations.

### Basic Operation Principle

The PortaMini is designed to combine simplicity of operation with accurate sample collection. It is operated on either AC or DC power supplies, and the unit comes with a rechargeable lead-acid battery pack with up to 24 sampling hours charge life, allowing the sampling site to be independent of mains power. An internal programmable timer can be set to perform six sampling runs within 24 hours, and variably for 7 days. The unit continuously monitors its battery voltage and airflow rate, and automatically shuts off sampling if limits are exceeded. A nonadjustable elapsed time 'totaliser' records the total pump operation time.

The PortaMini was developed in collaboration with the United States Environmental Protection Agency (US EPA) and meets the requirements for air sampling.

### Installation – Very Simple

The PortaMini requires no external shelter or power supply. The slim profile of the PortaMini enables discreet mounting and can be suspended from any convenient pole or structure. To minimise risk of vandalism or meet specific siting requirements the sampler can be installed and retrieved from locations up to 3 m above the ground using any convenient means (pole, tree branch, utility pole, etc.).

### Versatile Applications

The PortaMini Portable Air Sampler provides a level of flexibility that makes it the first choice for:

- ✓ Air quality assessment for environmental studies
- ✓ Flare Site and Flowstation boundary monitoring
- ✓ Construction site air monitoring
- ✓ Indoor air sampling – offices, factories, platforms, rigs, etc.
- ✓ Fugitive emissions sampling
- ✓ Urban/roadside air monitoring
- ✓ Industrial site fence line sampling
- ✓ Landfill site monitoring

### Urban/Remote Monitoring

Urban or remote sampling using PortaMini samplers in a project area will determine where the worst air quality problems exist. In addition to providing data for environmental assessment studies, PortaMini sampling is frequently used to determine the location for permanent monitoring sites, define boundaries of air quality concerns and the extent of particular source impacts.

**Indoor Sampling** – The small size and low noise output of the PortaMini make it ideal for monitoring air quality in the work place or public facilities.

**Other Uses** – The PortaMini can be used to monitor ambient air quality impact from a variety of sources including volcanoes, rocket engines, oil flares, forest fires, mining, construction sites, and agricultural sites.

### Operational Modes

**PM<sub>2.5</sub>, PM<sub>10</sub>, TSP Sampling** – For PM<sub>2.5</sub> & PM<sub>10</sub> sampling, air is drawn through particulate size separators and then through a filter medium – particle separation is achieved by impaction. For TSP sampling, no particle separation is carried out. Volumetric flow rate through the inlet is regulated to 5 litres min<sup>-1</sup> at ambient conditions. Particulate concentration is determined gravimetrically.

**Other Analysis** – equipped with quartz filters, samples collected can be chemically analysed for air pollutants such as THC, heavy metals, PAH, etc. Thus, the PortaMini not only generates data on particulate matter, but also samples for chemical analysis.

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