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MEASURE BLACK CARBON CONTENT OF FILTER SAMPLES

OT21

SOOTSCAN™ TRANSMISSOMETER

Measure Black Carbon content of filter samples

KEY FEATURES

- 2-Wavelength operation: UV (370 nm) & IR (880 nm)
- Non-contact, non-destructive, non-contaminating
- Accepts 25, 37 or 47 mm diameter filters
- Analyzes glass fiber, quartz fiber, Teflon filters

APPLICATIONS

- Air Quality monitoring
- Analysis of historical archives
- Identification of "biomass burning" aerosols
- Personal exposure monitoring
- Stack & emission testing
- Climate change monitoring

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PRODUCT SPECIFICATIONS

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MEASUREMENT PRINCIPLE
Measurement of the attenuation of transmitted light due to an aerosol deposit previously collected on the filter. Simultaneous analysis at 370 nm and 880 nm.

INTERPRETATION
Light absorption measurement at 880 nm interpreted as Black Carbon ('BC' also called 'Elemental Carbon – EC'). Measurement at 370 nm designated as UVPM, interpreted as a 'Brown Carbon' ('BrC') indicator of aromatic organic compounds such as are found in smoke from biomass burning.

DATA FORMAT
Attenuation (100 * $\ln[I_0/I]$)
in 'ATN' units at two wavelengths.

SPECIFICITY
No other aerosol species absorbs light even 0.001 times as much as Black Carbon in the visible range.

INTERCOMPARISON
Light absorption measurements can
be converted to BC or EC equivalents.

SENSITIVITY
1 ATN unit, equivalent to 0.06 µg/cm² BC on filter. If collected on a 47 mm diameter filter at a 16.7 LPM flow rate for 24 hours, this represents a Limit Of Detection for BC of 0.075 µg/m³.

MEASUREMENT RANGE
Maximum loading of 125 'ATN' units is optimal, equivalent to an average BC concentration of 3.1 µg/m³ collected on a 47 mm diameter filter at 16.7 LPM for 24 hours. At higher 'ATN' values, the linearity may be impaired.The Data Reduction Template suggests other choices of filter collection area, sampling flow rate and sample collection time to permit accurate data over a very wide range of BC concentrations.

SAMPLE MEDIUM
Quartz fiber, T60 Teflon coated borosilicate glass fiber, or Teflon membrane filters may be analyzed. For the use of other substrates contact us.

SAMPLE ANALYSIS AREA
Accommodates 25 mm, 37 mm,
and 47 mm diameter filter media.

SAMPLE RETENTION
Analysis is non-destructive, non-contact and non-contaminating. Filters are unaffected for subsequent laboratory analysis.

VALIDATION
NIST-traceable neutral density
filter kit option available.

DATA OUTPUT
Digital data available via rear
RS-232 (COM) and USB port.

DISPLAY AND INTERFACE
2-line display screen with keypad.

PHISYCAL SPECIFICATIONS
- Dimensions (HxWxD): 102 × 270 × 274 mm
- Weight: 5.5 kg
- Electrical Power supply: 100 - 230VAC 50/60Hz (auto-switching)
- Temperature: 0-40°C

ACCESORIES
- Optical Diffuser filters required for the analysis of samples collected on Teflon membranes: 47mm. pack of 25 (PN M8013)
- ND Filter Validation Kit set of 4 (PN M7475)

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Aerosol d.o.o.
Kamniška 39 A
SI-1000 Ljubljana
Slovenia
+386 1 439 1700

Keeping an Eye on the Air

Manufactured in EU by Aerosol d.o.o.

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