



CLEAN AIR ENGINEERING ANALYTICAL PRICE SCHEDULE

The following fee schedule applies for analytical work performed by the laboratories at Clean Air Engineering.

Organic Compound Analysis

Clean Air Engineering's organic laboratory specializes in the analysis of samples collected from source and ambient test programs. CleanAir utilizes gas chromatographs manufactured by Hewlett Packard, Perkin Elmer and MTI coupled with flame ionization, flame photometric and thermal conductivity detectors. CleanAir requests that all sample analysis be confirmed verbally before sending samples to verify that the analysis is within our capabilities. The price schedule for organic analysis per sample is as follows:

	First Compound	Each Additional Compound
Adsorbent Tube.....	\$125/sample	\$60/sample
Impinger Catch.....	\$125/sample	\$60/sample
Tedlar Bag	\$125/sample	\$60/sample

Coating and Ink Analysis

EPA Method 24.....	\$395/sample
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Clean Air Engineering's organic laboratory regularly performs EPA Method 204f distillations on liquid coating and ink samples. Using a Roto-Vap, a liquid sample is generated that can be used to determine response factors for total hydrocarbon analyzers.

EPA Method 204f	\$125/sample
Ten or more samples.....	10% discount on analysis
Twenty or more samples	25% discount on analysis

Inorganic Analysis

Clean Air Engineering's inorganic laboratory utilizes a Dionex Model DX2000i ion chromatograph. All analyses are performed in accordance with procedures in US EPA Methodology. Full pre and post analyses calibrations are provided as part of the per project pricing. The price schedule for inorganic analysis is as follows:

Ion Chromatography - Cations

Lithium	\$50/sample
Sodium.....	\$50/sample
Potassium.....	\$50/sample
Ammonium	\$50/sample
Magnesium	\$50/sample
Calcium.....	\$50/sample

Ion Chromatography – Anions

Fluoride.....	\$50/sample
Chloride*	\$50/sample
Nitrite.....	\$50/sample
Bromide	\$50/sample
Nitrate	\$50/sample
Phosphate.....	\$50/sample
Sulfate.....	\$50/sample

* Please note that BIF Method 9057 for HCl/Cl₂ calls for two sample analyses per run and would cost \$50 per run.

Ion Chromatography – Carbonate

Carbonate.....	\$50/sample
Formate.....	\$50/sample
Acetate.....	\$50/sample
Propionate.....	\$50/sample

Titration Analysis

Sulfur Dioxide (Method 6).....	\$50/sample
Sulfuric Acid Mist (Method 8)	\$50/sample

Gravimetric Analysis

Clean Air Engineering's gravimetric laboratory performs analysis on particulate samples collected using federal and state test methods.

Gravimetrics - Method 5, Method 17, CARB Method 5**Front-Half Analysis**

Filter * \$17/sample
 Probe Wash \$35/sample

* Pricing for post-test analysis only. Tared filter media are priced separately.

Back-Half Condensable

Gravimetric analysis of aqueous condensable (inorganic)..... \$35/sample
 Organic solvent extractable residue..... \$65/sample
 Back half acetone organic rinse (if required)..... \$35/sample
 Back half filtration analysis \$40/sample

Please note that some states require the additional back half filtration (such as Pennsylvania and New Jersey). If Method 202 sulfate analysis is required, ion chromatography charges will apply (see page 2).

Gravimetrics - Road Silt Determinations

Road Silt determined in accordance with EPA Report 450/3-88-008

"Procedures for Sampling Surface/Bulk Materials" \$125/sample

Gravimetrics – Tared Filter Media**8.26 cm Diameter Filters**

934AH Glass Fiber: \$30/each
 QAT UP Quartz Fiber: \$35/each
 Teflon Fiber:..... \$35/each

4.7 cm Diameter Filters

934AH Glass Fiber: \$30/each
 QAT UP Quartz Fiber: \$35/each
 Teflon Fiber:..... \$35/each

8" x 10" Filters (Hi-Vol Filters)

934AH Glass Fiber: \$40/each
 QAT UP Quartz Fiber: \$45/each

M17 Alundum Thimbles

Alundum Thimbles: \$110/each

37 mm Acetate Membrane Cassette Filter

Cassette Filter:..... \$35/each

Laboratory Resistivity Determinations

Laboratory resistivity and particle size analysis of particulate can be determined to aid in improving control device performance. CleanAir determines resistivity as a function of temperature in accordance with IEEE Standard 548. Particle size is determined using the Bahco Micro Particle Classifier.

IEEE Standard 548-1984

Round Trip - Resistivity measured as a function of ascending and descending test temperature between 85°C and 450°C in an environment of air containing one specified water concentration at an average electric field intensity of 4kV/cm..... \$1,095/Sample

Ascending temperatures only; otherwise same as round trip:.....\$880/Sample

Descending temperatures only; otherwise same as round trip:.....\$680/Sample

Descending temperatures with one ascending data point at the temperature of principal interest; otherwise same as round trip:.....\$790/Sample

Resistivity as a function of applied electric field at a specified temperature:.....\$680/Sample

With Sulfuric Acid or Ammonia Environment; EPA Report 600/7-78-035

Single point determination - Resistivity measured isothermally as a function of electric field intensity in an environment of air containing a specified concentration of water and sulfuric acid or ammonia vapor (48 hour test)..... \$1,095/Sample

Each additional data point produced by changing temperature, water concentration, sulfuric acid vapor concentration or ammonia vapor concentration (24 hour test):\$680/Sample

Computer Model Resistivity Predictions

Resistivity predicted as a function of temperature and environmental conditions (water and sulfuric acid concentration) using customer-supplied coal and ash compositional data. Model II described in EPA-600/7-86-010 is used; with brief comment \$275/sample

Predicted inherent and sodium-depleted volume resistivity using customer-supplied ash compositional data. Described in EPRI Report CS-3421; with brief comment:..... \$275/sample

Computer Model ESP Performance Predictions

Particle collection performance of an electrostatic precipitator is predicted using customer-supplied precipitator mechanical and electrical data as well as coal and fly ash compositional data. Model is described in EPA-600/7-84-069 a&b and is commonly referred to as the EPA/SRI computer model. In addition to modeling the existing precipitator performance, the effects of various changes (such as coal switching and gas conditioning) can be predicted. Priced according to scope and complexity.

Other Services

Bahco particle size classification with density correction	\$395/sample
Ash mineral analysis and loss-on-ignition (LOI)	\$375/sample
Short proximate, ultimate coal analysis	\$210/sample
Soluble sulfate analysis on ash	\$50/sample
Sieve analysis.....	\$125/sample
Loss-on-ignition (LOI)	\$35/sample
Scanning electron microscopy (SEM), x-ray diffraction, designed resistivity tests, and consultation work are available and are priced according to scope and complexity.	

Rush Analysis Pricing

Analytical results will be issued 15 working days from the receipt of samples. Rush analytical results may be available at increased rates upon request. Rush charges for analysis will be applied in the following manner:

1-2 working days	300% of set price
3-5 working days	200% of set price
6-10 working days	150% of set price

In any circumstance, a purchaser's request for rush analysis in a certain time frame authorizes all degrees of rush charges up to that extent. Rush charges on the final invoice will be reflective of when results were available and reported to the Purchaser. All days will be calculated on a five (5) day work week (except for holiday allowance).

*All analysis will be performed according to Clean Air Engineering's
Terms and Conditions for Laboratory Work.*