

MERCURY, DIOXIN & FURAN SAMPLING SYSTEM ECOTECH MODEL ESS 109



BACKGROUND

Measurement of Dioxin – Furans, PCB's, PAH's and SVOC's in emission from all those sources where medical hospital waste and hazardous waste are incinerated in presence of fossil fuel are necessary. These are Persistent Toxic Air Pollutants. Once these are emitted into atmosphere known to remain for decades. Concentration of these pollutants are in PPB and PPT levels. Health Impacts of these pollutants are irreversible. Sampling procedure for these pollutants has been outlined in USEPA methods. Sampler outline and schematic diagram is shown in Figure below from standard method.

Ecotech ESS 109 has developed for Dioxin & Furan sampling system where various provisions of Stack Emission Monitoring are existing as per standard method requirements. Particulates and gases can be collected simultaneously at Isokinetic flow rate and Dioxin – Furans are sampled on XAD-2 resins kept in series in sampling line.

In the kit besides standard sampling system provision for monitoring and control of temp at $120^{\circ}\text{C} \pm 5\%$ using digital temperature controller is existing. Condensate collection system before passing flue gas through XAD-2 is incorporated in the kit. Dioxin & Furan are adsorbed on XAD resin which is later extracted and analyzed along with collected condensate for Dioxin and Furan using GCHRMS analytical system.

ESS 109 is portable easy to handle and can be transported up to stack platform. Pump can be operated up to 7-8 hours duration for sample collection of dioxins & furans ESS 109 probe and other system has push fit system can easily dismantled for cleanup

SALIENT FEATURES

- Sampling System meet most of sampling requirements given in USEPA method No.23
- Probe Pipe & Thimble Holder are Glass lined
- Efficient Condensate collection system is available
- Required 120°C temp controlled using digital temperature controller
- Stand for better visibility and specious cold box provided for keeping ice for effective cooling

TECHNICAL SPECIFICATIONS

Temp. Range	Ambient to 600 °C
Stack Velocity Range	3 to 30 m/sec
Thermocouple	T/C sensor is SS 304 casing, length of insertion 1m with 2m long cable
Manometer	Digital with 0-1300mm of H ₂ O range
Pitot Tube &	Calibrated S-Type fabricated SS 304, 1m long
Particulate Sampling	0-60 lpm collection on thimble type filter upto 0.3 micron rating.
Gaseous Sampling	0-3lpm collection in a set of Borosilicate glass impingers
Rotameter	Acrylic body with 2% FSD accuracy, 0.5-60lpm for PM Dioxin and Furans and 0.3-3lpm for GAS.
Sampling Probe	1m long SS tube with inside lining of Glass and provision for controlling temp at 120°C using thermostat
Filter Holder	Glass filter holder with heating provision suitable to hold either cellulose filtration thimble (size 28mm ID X 100mm long) or glass fiber thimble (size 19mm ID X 90mm long).
Nozzle	SS 304. nozzle of ½, ⅜ & ¼" diameter
Connection	Leak Proof Push fit type
Temp. Controller	Digital Temperature Controller
Mounting Stand	A Portable foldable collapsible stand for keeping instrument at chest level of operator for operation ease.
Stop Watch	Liquid Cystal electronic stop watch. Display is visible at higher ambient temperature around stacks
Carrying Cases	Main panel is provided in lockable suite case while tools, thimble holder, probe pipe, nozzle and consumables are kept in easy to carry wooden box.



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