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FlexStream™ Gas-Feed Permeation Module

FlexStream™ GF/PM

The FlexStream™ GF/PM is an auxiliary permeation oven module that is used with a FlexStream™ Base Module when an application requires a high vapor pressure/high emission rate gas to be used in a Trace Source™ 57H or 57S Gas-Fed (GF) permeation tube. The FlexStream™ GF/PM module can work as a PM module but also has a gas feed pressure subsystem that allows the user to fill a Gas Fed Permeation Tube with a user supplied cylinder.

Most applications use liquid filled permeation tubes, so the FlexStream™ GF/PM acts as a typical permeation oven module (PM) that uses liquid filled Trace Source™ disposable tubes (up to 8) or one refillable tube (LFH or 57S Prefilled). However, the addition of a pressure control subsystem makes this instrument unique in its capabilities to provide a standard that must be used in the gas phase (e.g. NO, CO, O_2, etc). Using the valve controls on the FlexStream™ GF/PM, the user fills, purges, and refills the permeation tube as often as needed, always having a fresh gas standard for calibration.

The FlexStream™ GF/PM Module "feeds" gas into a certified 57H or 57s permeation tube and it is held at a set pressure and temperature. The Trace Source™ 57H or 57S permeation tube has a fixed inner membrane that is factory certified to provide a known stable emission rate of pure component gas. The permeation tube is refreshed (refilled) regularly using the instrument valve and purge controls when the emission rate of the tube is high, but not so often if the emission rate of the tube is low. Trace Source™ 57H or 57S Gas Fed permeation tubes are certified with pure gas but ship empty to the user.

Features

- Flow path suitable for reactive gases – mixture contacts only Teflon® and Stainless Steel (or glass if disposable tubes are used)

- Accepts 1 gas-fed (57S or 57H) permeation tube

- Alternately accepts up to 8 disposable tubes (max length 6")

- Analyte contacts only stainless steel

- High mass oven with electronic PID control

- Temperature Control Range: 5 °C above ambient from 30 to 150 °C (heat only)

- Temperature Setpoint Resolution: 0.01 °C across control range

- Standard Power: 115 VAC, 50/60 Hz, 2 A

- Optional Power (specify at time of purchase): 230 VAC, 50/60 Hz, 1 A

- Dimensions: 7" (18 cm) Width x 13.5" (34 cm) Height x 20" (51 cm) Depth

- Weight: Approximately 27 lbs

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Operation

In operation, a pure gas cylinder source (supplied by the user) is connected to the front of the module and is used to fill the permeation tube. Once the permeation tube is filled, it behaves as any other refillable type permeation tube and gas simply permeates the internal membrane and is swept out of the permeation tube through the flow subsystem of the instrument. The FlexStream™ GF/PM requires the control commands from the connected FlexStream™ Base Module and functions the same as the FlexStream™ PM Module except that for "Gas-Fed" tubes, the component gas is added by the user through the Component Gas In quick-connect fitting. The Component Gas Out port is connected to a safe vent for purging or when frequent refilling (refreshing) of the tube is needed. A purge shut-off control valve allows the user to determine the amount of pressure applied to the tube. With precise pressure and temperature control, the gas will permeate the internal membrane of the permeation tube at the certified emission rate. The tube can be refilled regularly with fresh gas and purged and emptied when not in use. Temperature, pressure and flow are controlled via the FlexStream™ Base Module microprocessor.

The addition of the FlexStream™ GF/PM to a FlexStream™ series of instruments allows use of any permeation tube manufactured by KIN-TEK Analytical, Inc. and provides excellent versatility for more difficult gas mixing applications.

KIN-TEK Analytical, Inc.
504 Laurel St., La Marque, Tx 77568 USA
Ph. 409-938-3627 • 1-800-326-3627
Fax: 409-938-3710
sales@kin-tek.com

To learn more about KIN-TEK visit www.kin-tek.com