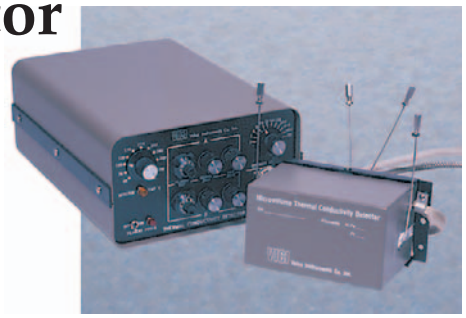
Analytical Components & Systems

from VICI Valco Instruments Co. Inc.

Dual Cell Microvolume Thermal Conductivity Detector



- Stand-alone unit
- Optimized for capillary chromatography
- Thermal stability to ±0.02°C
- Dual filaments capable of independent or referenced (differential) operation

The Valco Microvolume Thermal Conductivity Detector (TCD) is useful in a wide variety of capillary and packed column applications. Constant filament temperature control provides a linear dynamic range permitting measurement of a wide range of concentrations without the need for multiple standards or sample dilution.

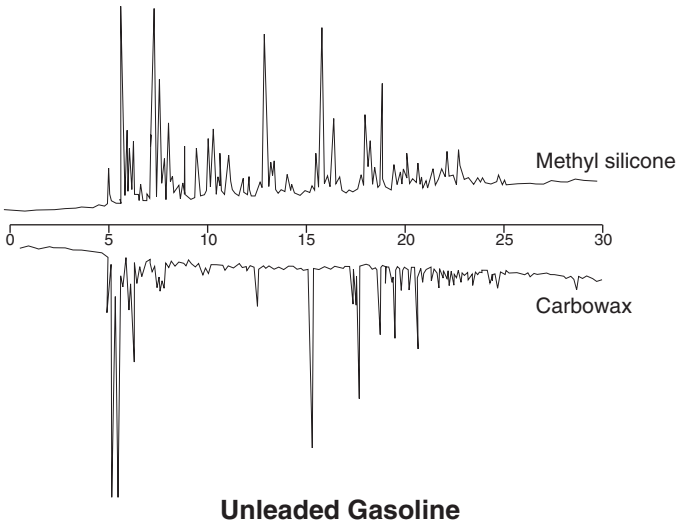
Since the detector is non-destructive of the sample and contributes virtually no band spreading, it can be used in series with other detectors without affecting the performance characteristics of either.

Description

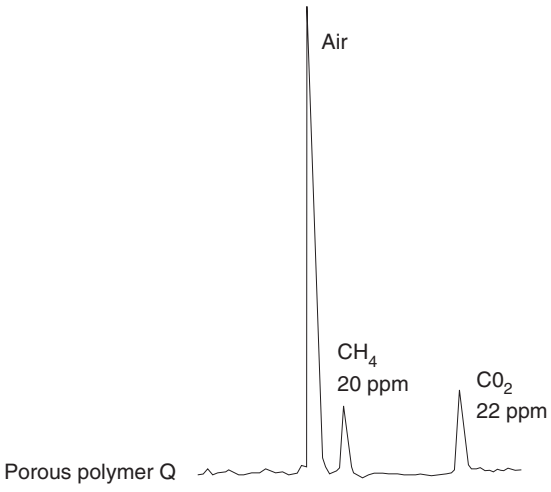
The detector consists of the cell housing and the electronics controller. The cell design permits mounting in virtually any orientation with no effect on performance. It can be installed easily on virtually any gas chromatograph, comprising a stand-alone unit requiring nothing else for operation but carrier gas flow.

Each of the two cell chambers is independent of the other, except for block temperature. Filaments can be replaced individually. Front panel controls set the temperature for the cell and for each filament. Since each detector cell can be operated separately or simultaneously, two analyses can be run using a single Valco TCD.

To insure compatibility with any system, two outputs are provided: 0-1 mV full scale attenuated output for recorders, and 0-10 V full scale unattenuated output for integrators and data acquisition systems.

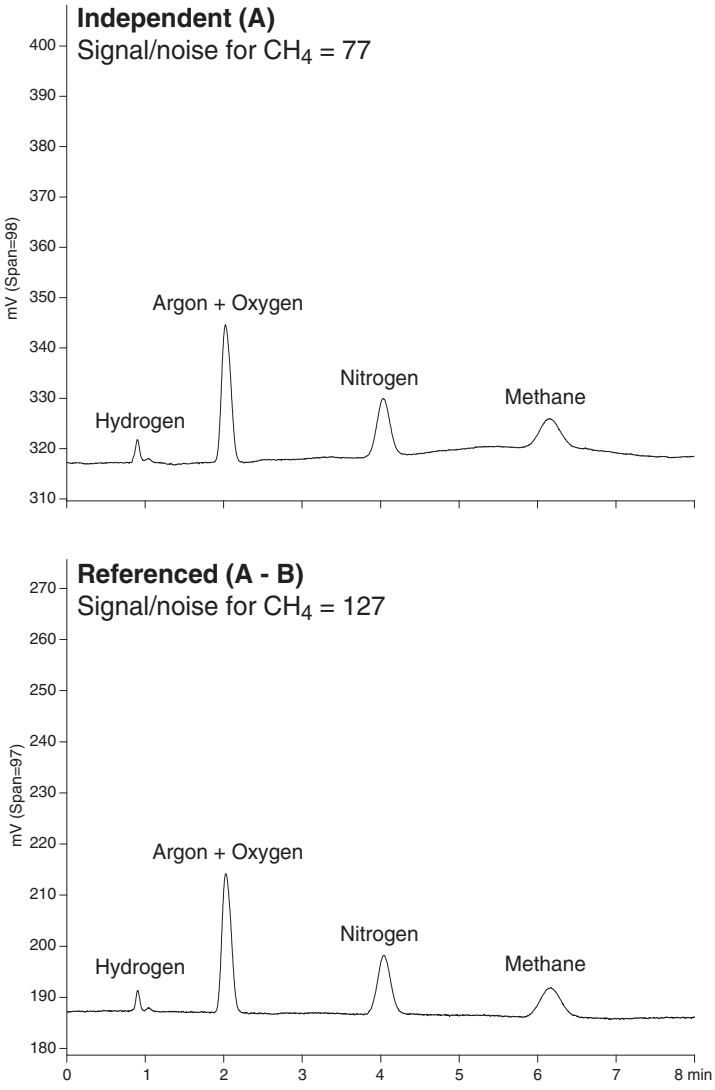


Unleaded Gasoline
50 m x 320 micron columns, 0.06 µl valve injection



Gas Standard
30 m x 530 micron PLOT column, 100 µl valve injection

Independent vs. referenced operation



Helium Blend

Sample size: 250 µl
Sample concentration: 100 ppm each
Column: 10' x 1/16" OD x 0.040" ID
Molesieve 5Å, micropacked
Column temp: 65°C
Detector temp: 100°C
Filament temp setting: 5.0
Flow rate
Channel A: 5.5 ml/min
Channel B: 5.42 ml/min

Specifications

Overall

Linear range	1 nanogram to 3 micrograms nC_4
Minimum detectable quantity	approx. 50 picograms n-butane
Time constant	< 150 milliseconds
Cell temperature control	Automatic proportional control with ±0.02°C stability
Maximum cell temperature	300°C

Detector assembly

Dimensions	3.12" x 6" x 3.75" high (8 cm x 15 cm x 9 cm)
Gas connections	Valco 1/16" zero dead volume fittings
Single multi-pin connector	5 foot cable supplied

Control unit

Dimensions	12" x 8" x 5" high (30 cm x 20 cm x 13 cm)
Electrical connections	Single multi-pin connector
Operator controls	Cell temperature control (40-400°C) 10-turn filament temperature potentiometers (A & B) 10-turn coarse and fine baseline adjustment potentiometers (A & B) 12 position recorder attenuator output switch (A, B, or A-B) Filament power on/off switch
Indicator LEDs	Detector heater “on” Filament power “on”
Power requirements	Universal 100-250 VAC 50/60 Hz, 100W maximum

Product numbers

	110 VAC	230 VAC
Dual cell microvolume TCD with:		
nickel/iron filaments	TCD2-NIFE	TCD2-NIFE-220
tungsten/rhenium filaments	TCD2-WRE	TCD2-WRE-220

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