

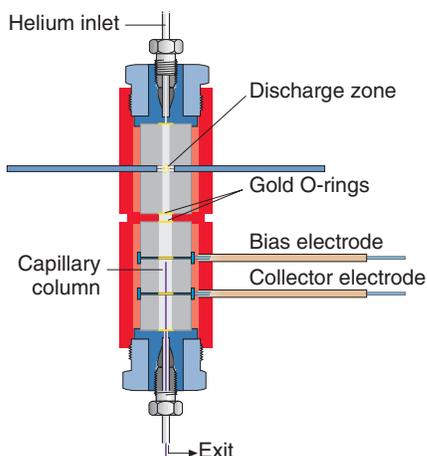
## Pulsed Discharge Detector for the Thermoquest TRACE™ GC

- Non-radioactive
- Sub-picogram sensitivity
- Capillary or packed columns
- Plug-in installation on the Thermoquest TRACE GC



### Description and Operating Principle

The VICI pulsed discharge detector (PDD), winner of R&D Magazine's prestigious R&D 100 Award, utilizes a stable, low-powered, pulsed DC discharge in helium as an ionization source. Elutants from the column, flowing counter to the flow of helium from the discharge zone, are ionized by photons from the helium discharge. (See the illustration below.) The bias electrode focuses the resulting electrons toward the collector electrode, where they cause changes in the standing current which are quantified as the detector output. The PDD's performance, verified by hundreds of users, is equal to or better than conventional detectors with radioactive sources.



### Mode Selection

#### Helium Photoionization Mode

In the helium photoionization mode, the PDD is a universal, non-destructive, high sensitivity detector. The close-to-true-mass response to both inorganic and organic compounds is linear over a wide range. Response to fixed gases is positive (standing current increases), with an MDQ in the low ppb range. The PDD in this mode is an excellent replacement for flame ionization detectors in petrochemical or refinery environments, where the flame and the use of hydrogen can be problematic.

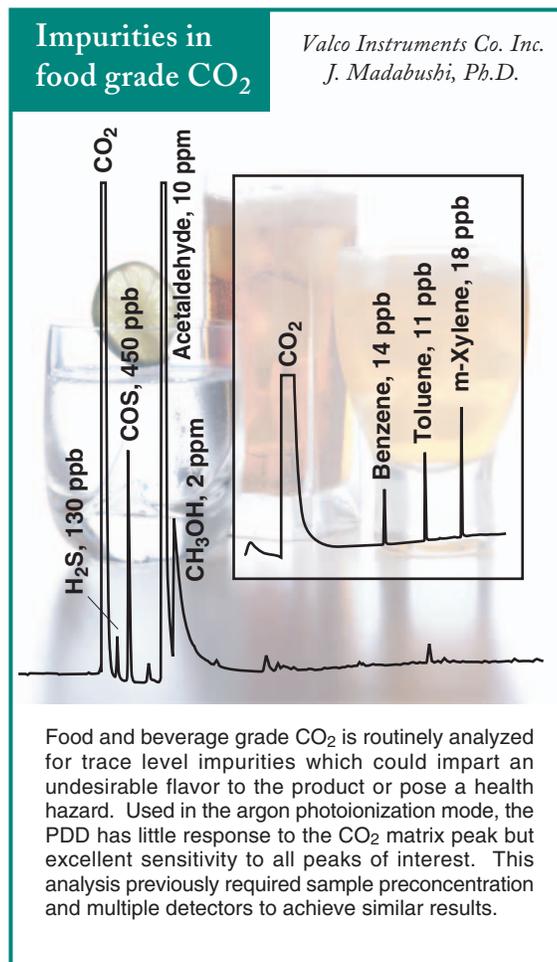
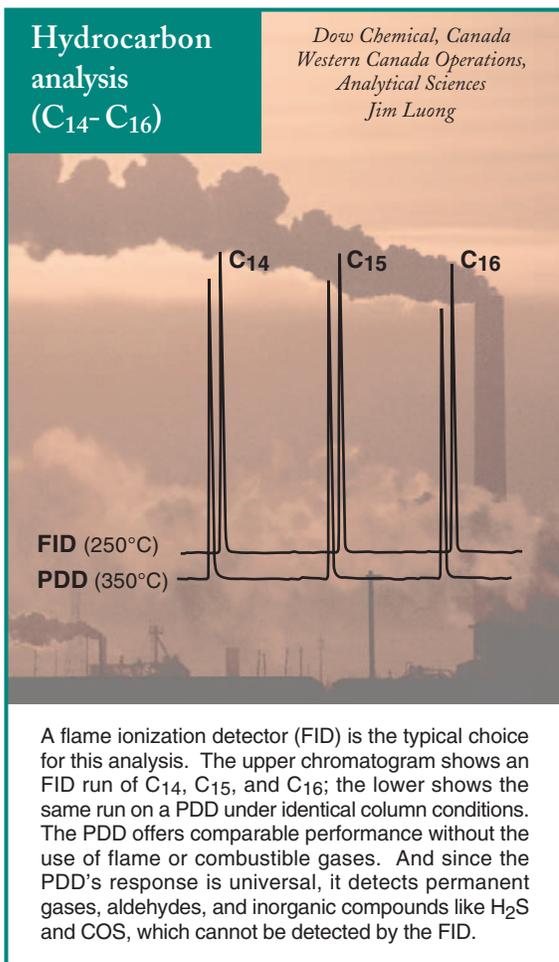
#### Selective Photoionization Mode

When the helium discharge gas is doped with a suitable noble gas, such as argon, krypton, or xenon (depending on the desired ionization potential cutoff point), the PDD can function as a specific photoionization detector for selective determination of aliphatics, aromatics, amines, and other species. Any problems associated with the presence of a window between the photon source and the ionization chamber are eliminated. In most applications involving current commercial PIDs, analyte condensation and decomposition on the window attenuate the lamp energy, necessitating frequent cleaning and recalibration.

The following patent numbers apply to this product:

5,153,519	5,317,271	5,394,090
5,394,091	5,541,519	5,532,599
5,528,150	5,594,346	5,394,092

## Sample Chromatograms



## Ordering Information

### Complete Detector Kit

Includes the detector and all the connection hardware, filters, and electronics to plug it directly into TRACE GC's

*Description*

*Product number*

Available from

Designed and manufactured by

**VICI Valco Instruments Co. Inc.**  
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