Gas-less™ Educational GC System

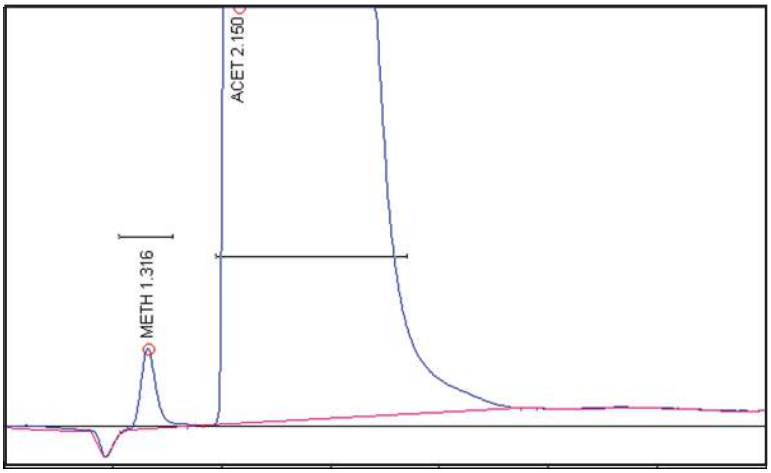
- **CCD Detector**
- **On-Column Injector**
- **Built-in "whisper quiet" Air Compressor**
- **1 channel PeakSimple Data System**
- **1 meter HayeSep-D Column**

...on the ultra compact 310 chassis

The Gas-less Educational GC system is ideal for demonstrating the principles of gas chromatography right in the classroom. The Gas-less Educational GC includes a built-in "whisper-quiet" air compressor and a CCD detector. The CCD detects combustible (hydrocarbon) molecules and it operates on air carrier gas from the internal air compressor.

This GC is perfect for teaching situations where compressed gas cylinders cannot be used due to safety considerations or budgetary limitations. Because it operates on its own infinite supply of room air, the Gas-less GC may be used to perform demonstrations in the classroom, instead of the lab. Most traditional GCs require helium carrier gas. Compared to the ongoing cost of cylinder rental, storage, and gas consumption, operation of the Gas-less Educational GC is essentially free, except for the minimal cost of electricity.

This chromatogram shows a separation of 1µL of 1000ppm methanol in acetone using a standard Gas-less Educational GC at 130°C.



The Gas-less Educational GC is equipped with a built-in, single channel PeakSimple data system, which provides powerful yet easy data acquisition, as well as temperature programming for the column oven. Fast cool-down fans automatically cool the column oven at the end of the analysis from 250°C to 50°C in less than five minutes.

0310-1006 **Gas-less™ CCD GC System with fast cool-down**

(VOLTAGE: for 115VAC, use 0310-1006-1; for 230VAC, use 0310-1006-2)
NOTE: Educational models are less expensive than equivalent GCs manufactured "à la carte" because of batch manufacturing efficiencies. No customization of educational models is available prior to initial sale, although normal factory retrofit services are available after delivery.

Educational TCD GC System

- **TCD Detector with User Replaceable Filaments**
- **Carrier Gas Electronic Pressure Control (EPC)**
- **Temperature Programmable Column Oven**
- **1 channel PeakSimple Data System**
- **1 meter Silica Gel Column**

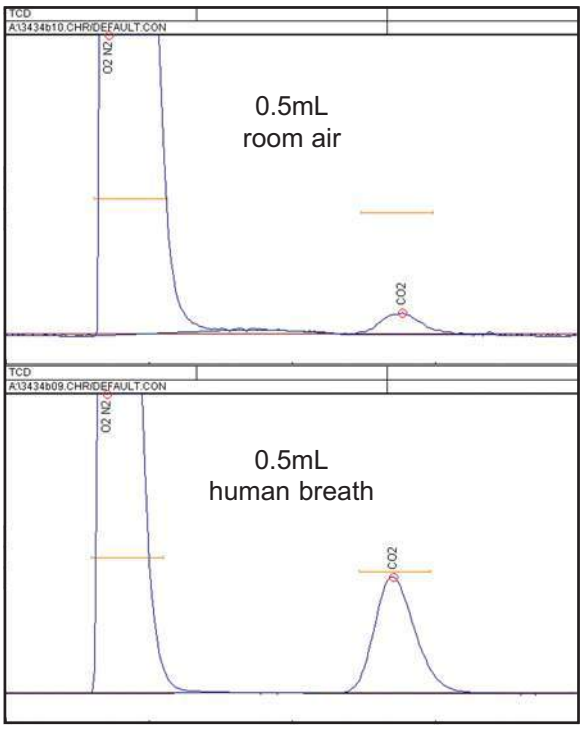
...on the ultra compact 310 chassis

The Educational TCD GC is ideal for undergraduate chemistry classes where the principles of gas chromatography are demonstrated on equipment identical to what students will encounter in industry. Because of their low cost and upgradability* with other SRI detectors and injectors, these GCs are also widely used by thrifty labs for simple applications such as landfill gas analysis, stack monitoring, and quality control.

Configured on the compact 310 chassis, the Educational TCD GC includes a traditional 4-filament Thermal Conductivity Detector that can heat to 275°C. The built-in single channel PeakSimple data system provides powerful yet easy data acquisition and temperature programming for the column oven.

The column oven is temperature programmable up to 300°C, and comes with fast cool-down fans. Electronic Pressure Control (EPC) for the carrier gas provides rock-solid retention time reproducibility.

These two similar chromatograms were produced under the same conditions. The first sample is room air, and the second is human breath. In both runs, the CO_2 peak is separated from the O_2/N_2 peak at 80°C on a standard Educational TCD GC with a Silica Gel column.



0310-1000 **Educational TCD GC System**

(VOLTAGE: for 115VAC, use 0310-1000-1; for 230VAC, use 0310-1000-2)

*Educational models are less expensive than equivalent GCs manufactured “à la carte” because of batch manufacturing efficiencies. No customization of educational models is available prior to initial sale, although normal factory retrofit services are available after delivery.

Educational FID GC System

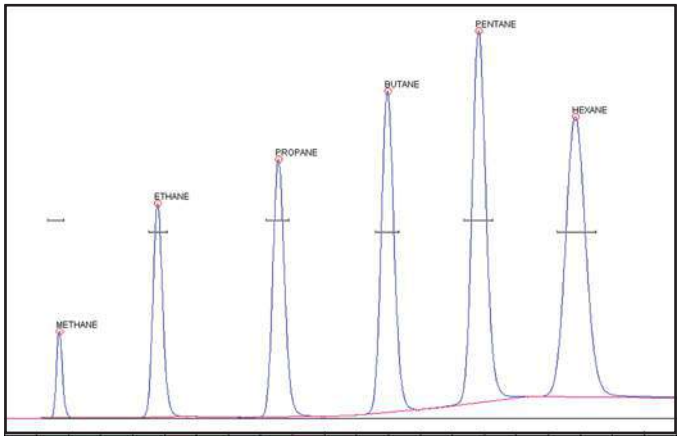
- **FID Detector**
- **On-Column Injector**
- **Carrier & Combustion Gas Electronic Pressure Control (EPC)**
- **Temperature Programmable Column Oven**
- **1 channel PeakSimple Data System**
- **1 meter Silica Gel Column**

...on the ultra compact 310 chassis

The Gas-less Educational GC system is ideal for demonstrating the principles of gas chromatography right in the classroom. The Gas-less Educational GC includes a built-in "whisper-quiet" air compressor and a CCD detector. The CCD detects combustible (hydrocarbon) molecules and it operates on air carrier gas from the internal air compressor.

The carrier gas and the FID combustion gases are all controlled by programmable electronic pressure regulators (EPCs). EPCs not only provide rock-solid retention time reproducibility, but allow the carrier gas to be pressure ramped (just as the column oven is temperature ramped) from the built-in PeakSimple data system.

This chromatogram shows a separation of 1000ppm C_1-C_6 hydrocarbons in room air using the 1 meter silica gel column.



The on-column injector is ideal for 1/8" packed or 0.53mm wide-bore capillary columns and is suitable for analytes ranging from methane to heavy, high-boiling hydrocarbons(C_{44}+). The column oven accepts column cage diameters up to 4 inches, is programmable up to 300°C and recycles quickly with its high speed cool-down fans.

0310-0004 **Educational FID GC System**

(VOLTAGE: for 115VAC, use 0310-0004-1; for 230VAC, use 0310-0004-2)
*Educational models are less expensive than equivalent GCs manufactured "à la carte" because of batch manufacturing efficiencies. No customization of educational models is available prior to initial sale, although normal factory retrofit services are available after delivery.