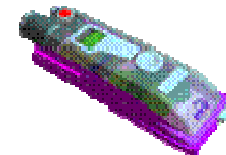


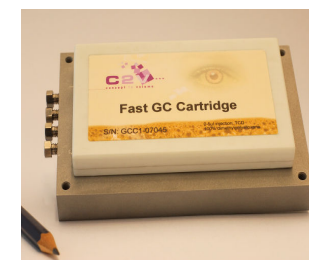
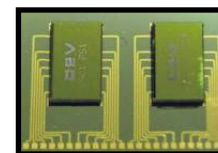
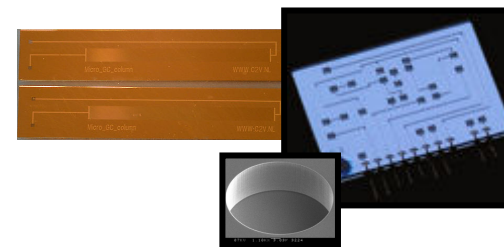
# BC micro gas analyzer description

- Fast separation and detection of volatile components in a gas.
- Miniaturization and integration of a micro gas chromatograph, including injector, column, and detector results in:
  - Reduction of analysis from 30 minutes to less than 10 seconds
  - Reduction of costs by 1 order (from 10'000's of euro's to 1000's of euro's)
  - ppm sensitivity by using a microTCD
  - Reduction of weight and size from lab table model to hand size model
  - Reduction of power and size to allow field monitoring
- Technology:
  - silicon and glass MEMS micromachined chip components (valves, detector)
  - integrated on a channel board (electrical & fluidic interface)
  - such that it can be heated up to 200 C, using a cartridge concept
- Markets:
  - Safety and security: monitoring of toxic gases in buildings or field
  - Military: Chemical warfare agents in the field
  - Lab & environmental: monitoring of all kinds of (industrial) gasses in lab/field



## Technology

- *chip level*:
  - for microfluidics chip components such as injector, detector, channel board
- *integrated chip module level*:
  - using Fluidic Multi Chip Module (FMCM) integration technology, creating a sort of “lab-on-a-chip” device
- *cartridge level*:
  - exchangeable cartridge board with GC separation functionality (Board with integrated chip module, heating, column, and electrical + gas connections)
- *Instrument module level*:
  - packaged cartridge channel board with electronics, software, USB and standard gas connections



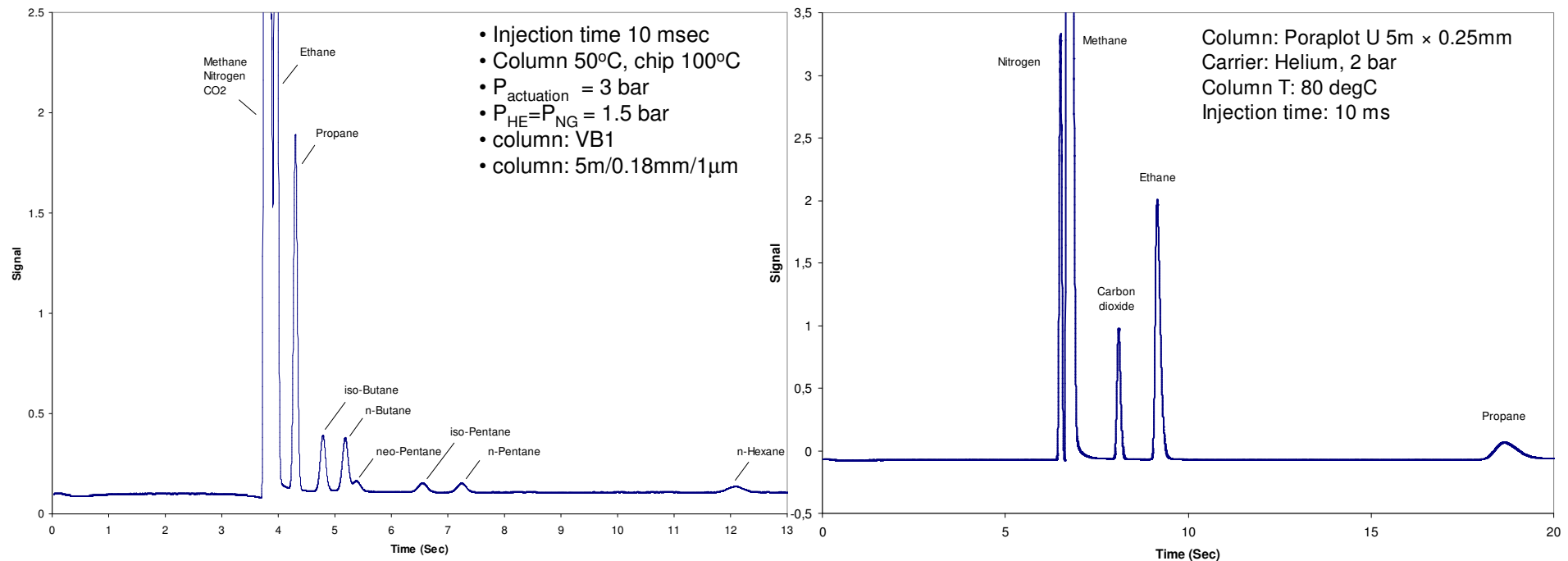
# Natural gas analysis

VB1 column:

- 12 seconds @ 50 C
- High separation quality
- C2-C5, neo-pentane visible

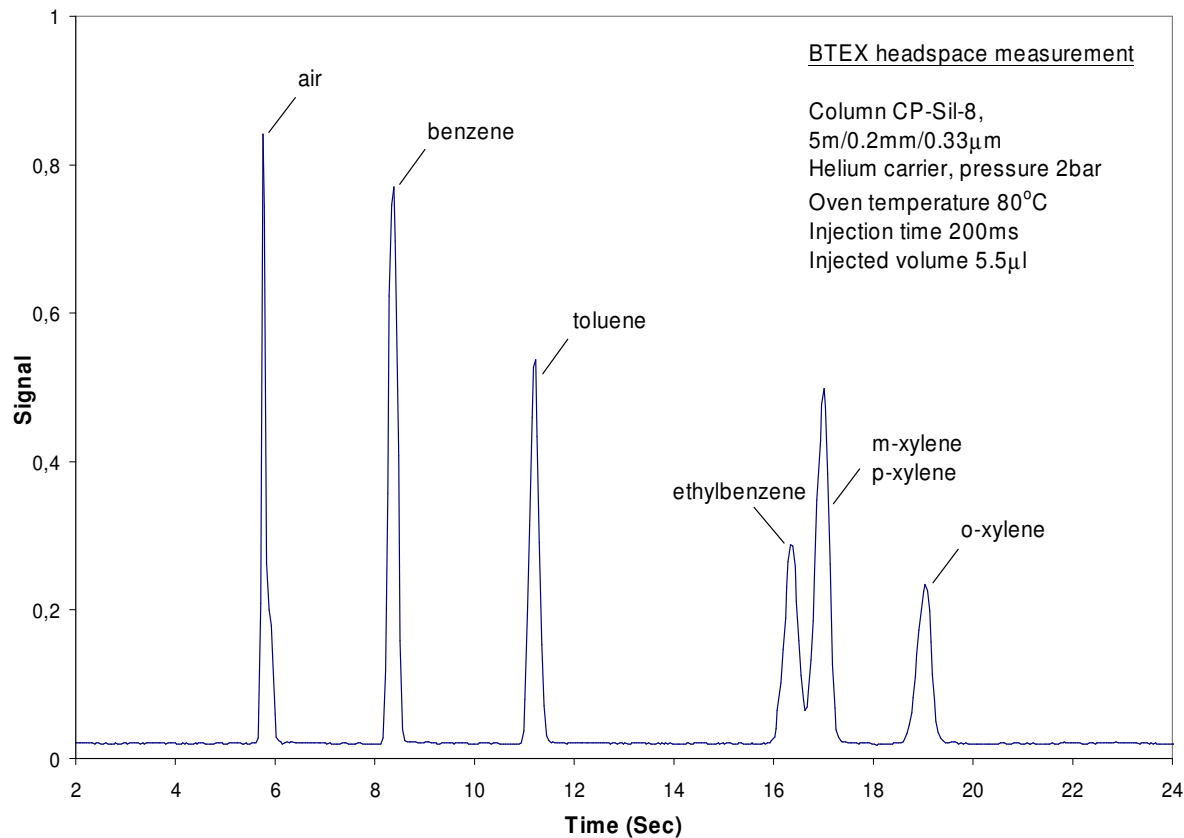
Poraplot column:

- 18 sec @ 80 C
- High separation quality
- N2, CH4, CO2, C2H6, C3H8



# BTEX headspace separation

- Very fast separation < 20 seconds (60°C)
- Excellent separation quality
- Zero peak tailing
- Headspace injection



5m CP-Sil-8, 60°C, 2 bar, 200 ms injection time