

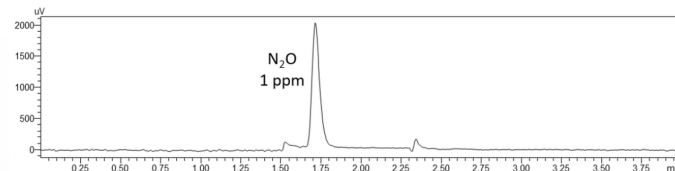
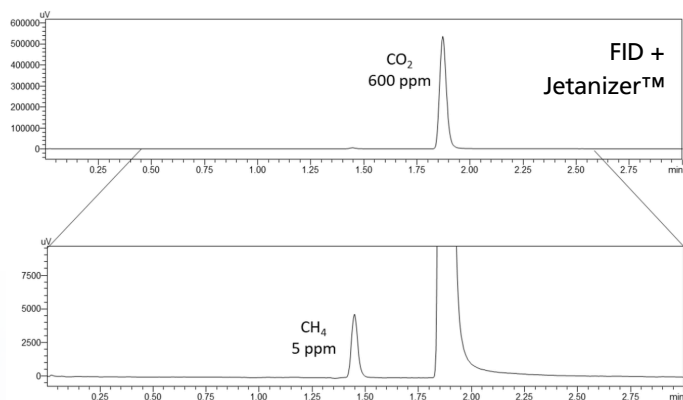
Rapid Greenhouse Gas Analysis System

Introduction

Greenhouse gases (GHGs) contribute to the greenhouse effect by absorbing infrared (IR) energy from sunlight and reflecting this energy back towards the Earth.

Shimadzu offers a Gas Chromatography system that facilitates easy qualitative and quantitative analysis of three major GHGs: methane, carbon dioxide, and nitrous oxide.

Achievable LODs for GHGs and representative chromatograms for analysis of standards.

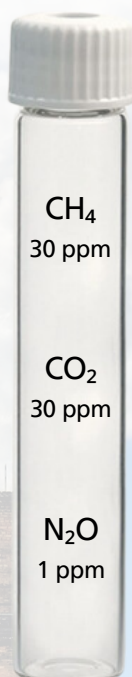


**Data from Shimadzu Application News: Rapid Greenhouse Gas Analysis via the Nexis™ GC-2030 Gas Chromatograph.*

System Overview

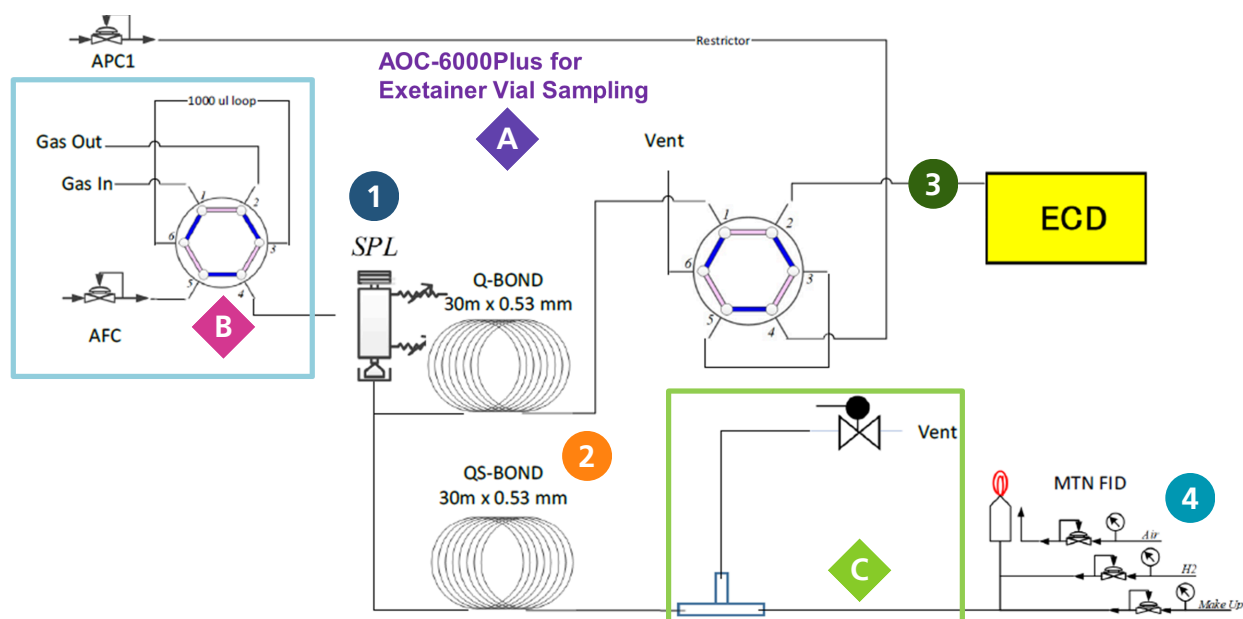
Shimadzu's flagship GC-2030 configured for Greenhouse Gas analysis offers:

- Bespoke build
- Sample run-time of only 5 minutes*
- Fully developed analytical method
- Flexible and future-proof options with available upgrade pathways
- Exetainer® vials compatible autosampler
- SPL injection port, FID detector with Jetanizer™ for CH₄ and CO₂
- ECD detector for N₂O analysis with 6-port valve
- Installation by factory-trained Shimadzu Engineer
- On-site bespoke training by Shimadzu Application Specialist
- Ongoing technical support online for the instrument's lifetime
- Windows 10/11 PC with intuitive LabSolutions Software package



System Schematic

- 1 SPL – Split/Splitless Injection Port**
Sample introduced and flow is reliably split onto 2 columns.
- 2 Analytical Columns**
Analytes separated optimally using Shimadzu's SH-Q-BOND and QS-BOND phases.
- 3 Electron Capture Detector (ECD) and Vent Valve**
Electron Capture Detector for trace detection of N_2O , protecting the detector by flushing compounds to vent using the in-line 6-port valve.
- 4 Flame Ionization Detector (FID) with Jetanizer™**
Provides reliable analysis of CO_2 , CH_4 and CO , and can be expanded to light hydrocarbons.



- A Exetainer® Vial Sampling**
Increase sample throughput with a highly reproducible autosampler – AOC-6000Plus.
Direct, highly reproducible sampling from Exetainer® vials (72, 144 or 216 positions possible).
Includes Liquid and Headspace injection modules for additional flexibility and futureproofing.
- B Manual Gas Sampling**
Additional 6-port valve provides ability to sample e.g. Tedlar bags through a fixed volume loop.
- C Deans Switch Device**
Option to vent unwanted compounds before they reach the FID.
Reliably remove acetylene (known catalyst coking agent) or hydrogen sulfide.



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