AC Fast Refinery Gas Analyzer Separates Inert Gases and C1-C5 Hydocarbons in 20 Minutes

Product Brief

### KEY FEATURES

✔ **Fast analysis in 20 minutes**

✔ **Applies to broad sample scope**

✔ **All flows and pressures fully EPC controlled**

✔ **Includes automated sample shut-off valve**

✔ **Robust system uses inert tubing resistant to corrosive materials**

✔ **AC GAS$^{XLNC™}$ software automates gas properties calculations**

✔ **Optional Gas and Liquid Sampling Device**

✔ **Excellent Detectability**

INTRODUCTION

Refinery gas streams vary considerably in composition. Determining individual components of each gas stream is a challenge. An exact measure of stream components is essential in achieving optimum control and assuring product quality.

FAST ANALYSIS IN 20 MINUTES

AC Analytical Controls offers the Fast Refinery Gas Analyzer (RGA), a fast solution that determines the composition of refinery gases within twenty minutes.
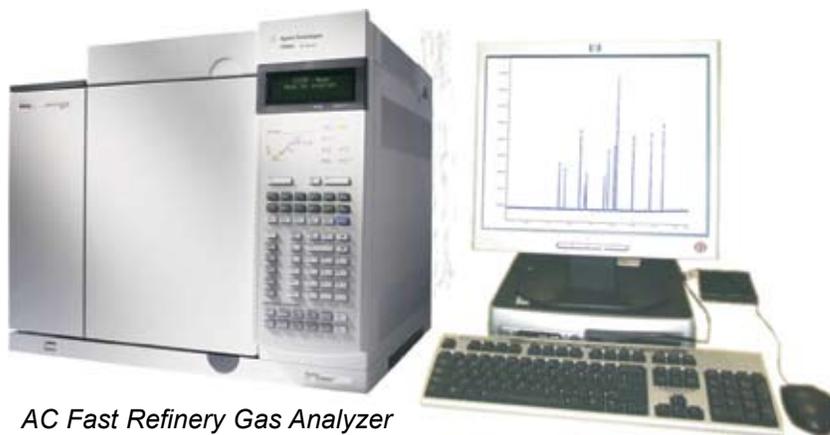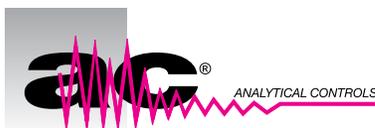

AC Fast Refinery Gas Analyzer

The AC Fast RGA system Model 1058 (UOP 539) characterizes:

- C1 - C5, C5+ hydrocarbons
- Inert gases: including hydrogen, helium, nitrogen, oxygen, carbon monoxide, carbon dioxide
- Hydrogen sulfide

Gaseous Samples	Liquefied Samples
• Atmospheric overhead	• LPG
• Ethylene	• Propane
• FCC Overhead	• Butane
• Fuel Gas	• Butadiene
• Recycle Gas	• Propylene
• Desulfurizer Off Gas	

AC Fast RGA offers a broad sample scope

ANALYTICAL CONTROLS

⊕PAC Company

ROBUST SYSTEM

The AC Fast Refinery Gas Analyzer uses the new Agilent Technologies 7890 Series gas chromatograph with full electronic pneumatics control (EPC).

AC configures the GC with application specific valves & columns, two Thermal Conductivity Detectors (TCD) and a Flame Ionization Detector (FID).

All flows and pressures are electronically controlled. The use of inert material increases the resistance to corrosive materials.

FAST REFINERY GAS ANALYSIS

The AC Fast Refinery Gas Analyzer Model 1058 contains six columns and is subdivided into three separate channels. One channel uses the FID to determine C2 - C5 hydrocarbons.

The second channel separates helium and hydrogen, the third channel is used to determine oxygen, nitrogen, carbon monoxide, carbon dioxide and hydrogen sulfide.

All channels operate simultaneously to provide a fast analysis in twenty minutes.
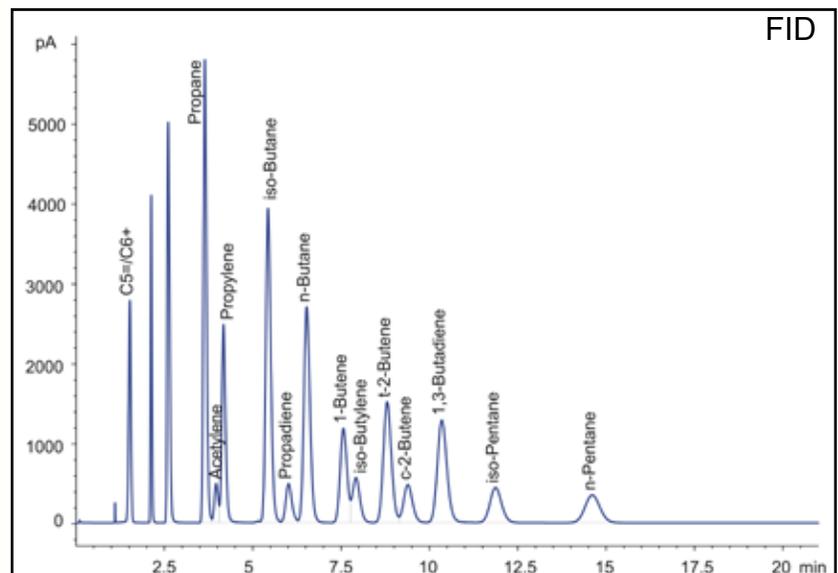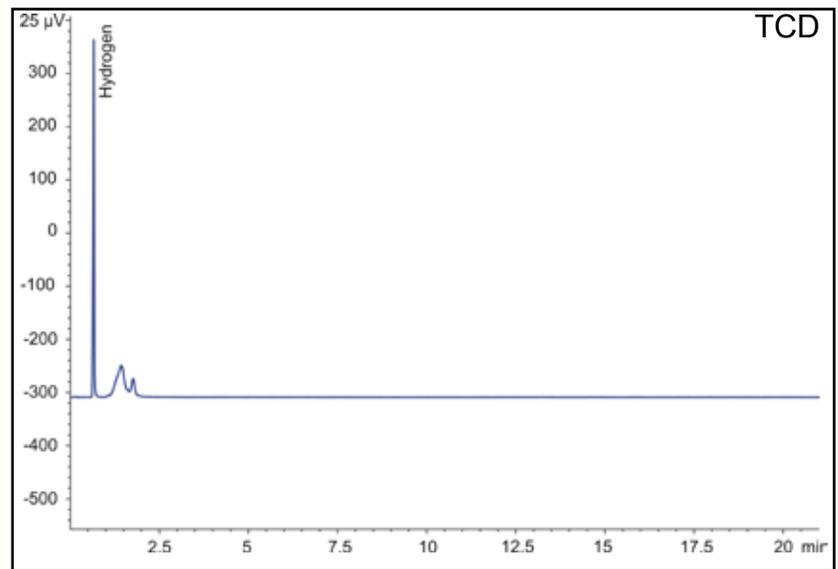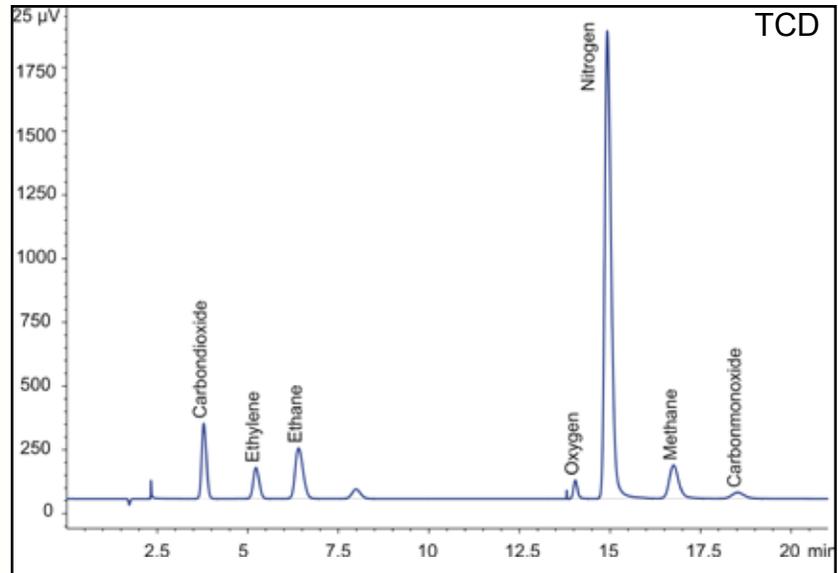
Fast RGA analysis of a calibration gas in 20 minutes

## GAS ANALYSIS SOFTWARE EXCELLENCE™ (GAS$^{XLNC™}$)

AC developed the new GAS$^{XLNC™}$ program that offers an extensive range of report options and allows a multilevel calibration and accurate calculation of gas properties according to standard methods:

- ASTM D 3588, D 2598
- DIN 51666
- ISO 6976
- GPA 2172

The software also include calculations for oxygen correction (ISO 6974-3) and bridge calculation.

CUSTOMIZED REPORTING & AUTOMATED CALCULATIONS

The dedicated software design enables you to add customized calculations or edit existing calculations, and is compatible with major chromatographic data systems.

GAS$^{XLNC™}$ Main Screen

GAS$^{XLNC™}$ Calibration Browser
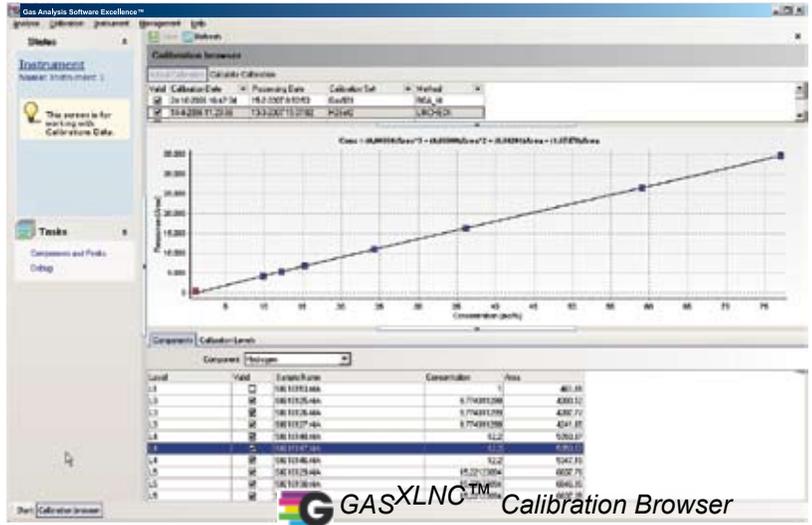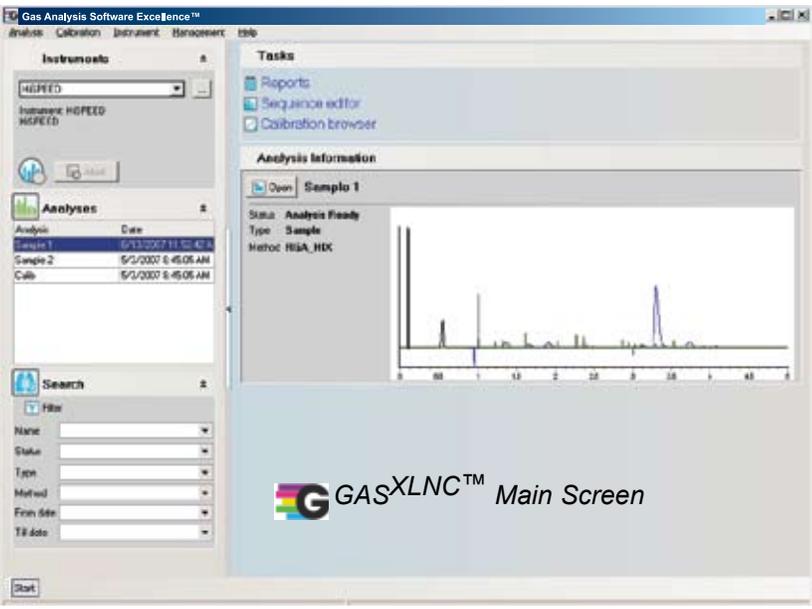
MORE FEATURES & BENEFITS

- **Secured & Reliable** Data Management

- **Self Explanatory** Operation

- Use of **Plugs-ins** Allowed:
  The framework allows adding of plug-ins that offer optional features. The main application functions autonomously, adding plug-ins will not change the main application.

- **Management Procedures** Included:
  - Function access for users & groups
  - Traceability of analysis & calibrations
  - Trend analysis option; to monitor the instrument performance in time
  - Approval of analyses: to block approval analysis for changes
  - LIMS connectivity (manually or automated)

- **Calibration Management**:
  - Secures all calibrations performed. Analysis can easily be recalculated with other calibration data.
  - Calibration browser validates the calibration analysis and can be used to view analyzed calibration sets. The screen displays a calibration plot and the used calibration analyses. Calibration analyses can be validated or discarded.

- **Calibration Features:**
  - Single level
  - Bracketing
  - Multilevel according to ISO 6974-2
  - Use of Absolute <u>AND</u> Relative Response Factors

- **Advanced Peak Identification** for:
  - Individual peaks
  - Group identification
  - Unknown handling

- **Uncertainty** Calculations
  Error propagation according to ISO 6974-2 is used to calculate the uncertainty in the normalized data and in the derived properties

GAS AND LIQUID SAMPLING DEVICE

AC Analytical Controls offers a special unit to introduce gas samples to AC gas systems. The Gas and Liquid Sampling Device allows customers to easily connect the sample cylinder to the holder unit and to measure the gas flow. The additional unit can be linked to the GC.

The operational advantages are:
- Easy and leak free connection to the GC
- Repeatable injection volume for gas and LPG
- Improved precision of external standard analysis of impurities in ethylene and propylene

Gas and Liquid Sampling Device

EXCELLENT DETECTABILITY

The quantification limit (QL) for the AC Fast RGA Model 1058 system is:
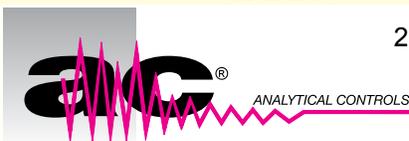- 0.05% for inert gases
- 0.01% for hydrocarbons
- 0.1% for hydrogen sulfide

The AC Fast RGA analyzer meets the requirements of UOP 539 and DIN 51666.

FEATURES & BENEFITS

✔ Characterizes the composition of refinery gases within twenty minutes
✔ Allows the analysis of a broad sample scope
✔ Uses the new Agilent 7890 Series Gas Chromatograph
✔ All flows and pressures are EPC controlled
✔ Includes automated sample shut-off valve
✔ Robust system uses inert tubing resistant to corrosive materials
✔ Meets the requirements of UOP 539 and DIN 51666
✔ Excellent detectability
✔ AC GAS^{XLNC}™ software automates gas properties calculations

✔ AC GAS^{XLNC}™ software allows single or multi-level calibration according to ISO 6974-2
✔ The AC Gas and Liquid Sampling Device offers a variety of operational advantages
✔ Instrument delivery time within three weeks
✔ A global network of AC certified support engineers commissions the system on-site in two days
✔ Includes one year hardware and application warranty
✔ Includes free helpdesk assistance to any hardware or software related questions
✔ Optional on-line remote support by LAN connection available

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