Designed to Simplify and Standardize Gas Analysis

GAS XLNC™ Software

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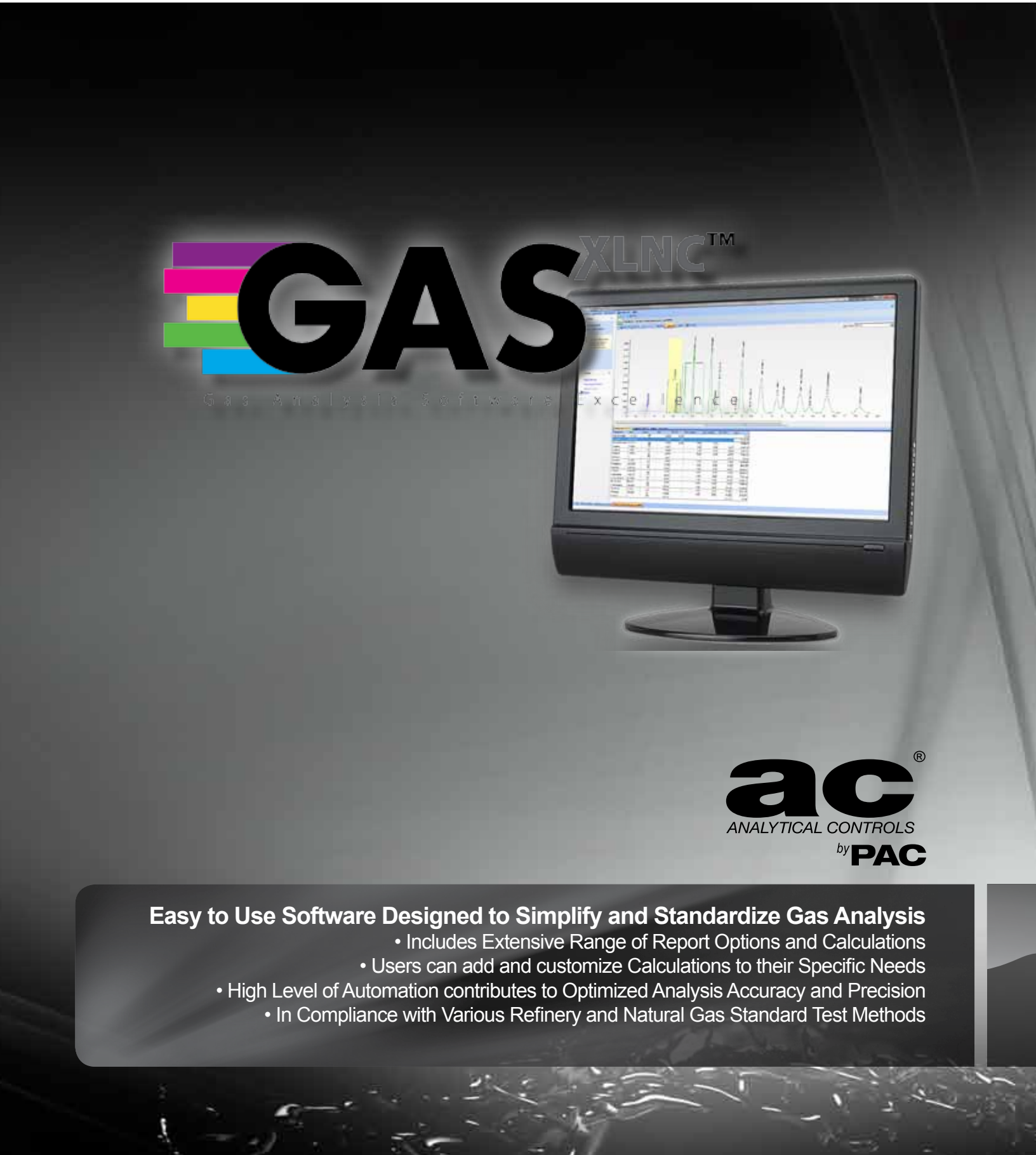
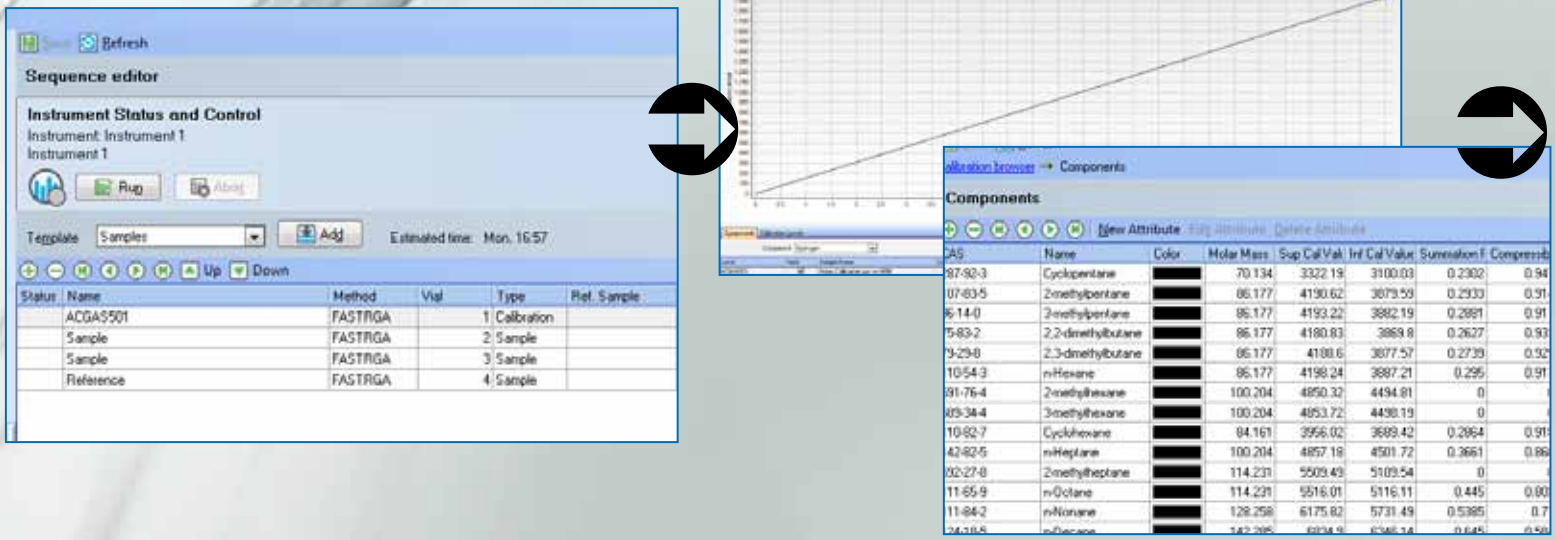


ac®
ANALYTICAL CONTROLS
by PAC

Easy to Use Software Designed to Simplify and Standardize Gas Analysis

- Includes Extensive Range of Report Options and Calculations
- Users can add and customize Calculations to their Specific Needs
- High Level of Automation contributes to Optimized Analysis Accuracy and Precision
- In Compliance with Various Refinery and Natural Gas Standard Test Methods

GASXLNC™ WORKFLOW



INSTRUMENT STATUS AND CONTROL

- Instrument status, creates sequences, and calculates end time for sequence
- Templates for samples/ calibrations, LIMS ID

CALIBRATION

- Setup multiple calibration sets
- Add sample uncertainties, track expiration dates

COMPONENTS FLEXIBILITY

- Add or edit physical properties for each component needed

ADVANCED OPTIONS

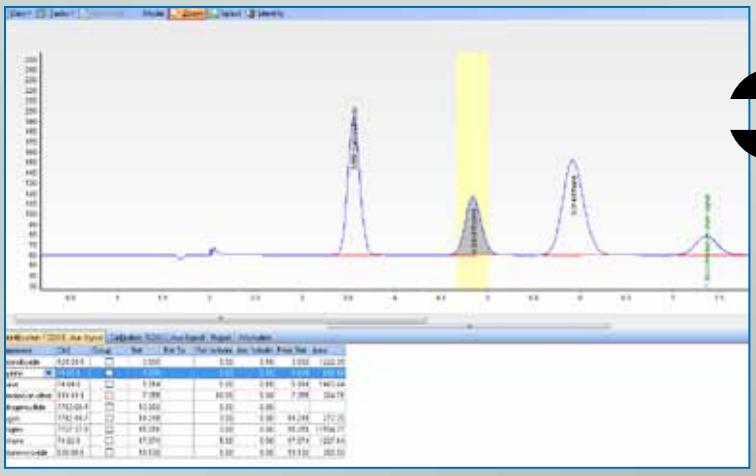
- Calculation for oxygen correction (ISO 6974-3)
- Bridge calculation across system channels
- Advanced Peak Identification for ndividual peaks or peak Groups
- Unknowns handling
- Uncertainty Calculations
- Error propagation calculation (ISO 6974-2)

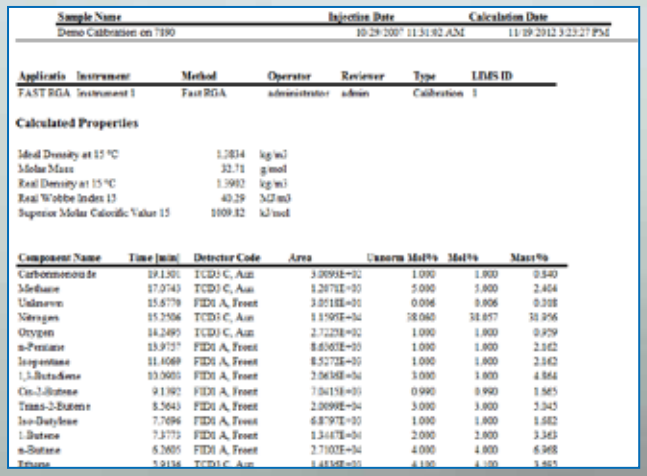
STANDARD TEST METHOD

- ISO 6974, ISO 6976, ISO 8973
- EN 15984 / DIN 51666
- EN 589
- ASTM D3588, ASTM D2598
- GPA 2172, GPA 2261, GPA 2286

GAS XLNC™

Gas Analysis Software Excellence





Sample Name | Injection Date | Calculation Date

Demo Calibration on 7890 | 10/29/2007 11:31:02 AM | 11/09/2012 3:23:27 PM

Applicatio | Instrument | Method | Operator | Reviewer | Type | LIMS ID

FAST RGA | Instrument 1 | Fast RGA | administrator | admin | Calibration | 1

Calculated Properties

Ideal Density at 15 °C	1.2834	kg/m3
Molar Mass	32.71	g/mol
Real Density at 15 °C	1.3992	kg/m3
Real Wobbe Index 13	40.29	MJ/m3
Superior Molar Calorific Value 15	1009.82	kJ/mol

Component Name	Time [min]	Detector Code	Area	Unnorm Mol%	Mol%	Mass%
Carbonmonoxide	19.1301	TCD3 C, Aux	3.0095E+02	1.000	1.000	0.540
Methane	17.0743	TCD3 C, Aux	1.2078E+03	5.000	5.000	2.464
Unknown	15.6779	FID1 A, Front	3.0158E+01	0.006	0.006	0.018
Nitrogen	15.2506	TCD3 C, Aux	1.1595E+04	18.060	18.057	18.956
Oxygen	14.2493	TCD3 C, Aux	2.7223E+03	1.000	1.000	0.929
n-Pentane	13.9757	FID1 A, Front	8.6565E+03	1.000	1.000	2.162
Isopentane	11.4069	FID1 A, Front	8.5272E+03	1.000	1.000	2.162
1,3-Butadiene	10.0601	FID1 A, Front	2.5636E+04	3.000	3.000	4.864
Cis-2-Butene	9.1392	FID1 A, Front	7.0415E+03	0.990	0.990	1.565
Trans-2-Butene	8.5643	FID1 A, Front	2.0099E+04	3.000	3.000	5.045
Iso-Butylene	7.7696	FID1 A, Front	6.8797E+03	1.000	1.000	1.682
1-Butene	7.3773	FID1 A, Front	1.3467E+04	2.000	2.000	3.363
n-Butane	6.2605	FID1 A, Front	2.7102E+04	4.000	4.000	6.968
Ethane	5.9136	TCD1 C, Aux	1.4838E+03	4.100	4.100	3.983

ANALYSIS

Chromatogram View:

- Zoom/select
- Identify modes allow easy sample evaluation

REPORTING

- Print flexible reports
- Traceable, according to method or customized to need
- Export to file, LIMS

RELIABLE DATAMANAGEMENT

GASXLNC™ keeps track of all calibrations performed. This traceability allows for any result to be reproduced or recalculated with revised calibration data. Sample analysis results are maintained similarly.

Calibration can be performed in Single point, multilevel and bracketing mode, such as required in ISO6974-2. The calibration browser validates the calibration analysis and can be used to view analyzed calibration sets. The screen displays calibration plot and the calibration analyses results used, allowing calibration results to be approved or removed. Approved results are blocked from further change.
The Trend Analysis function logs calibration/performance data over time, providing tools to the chemist for complying with any QC program.

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SPECIFICATIONS

GAS CALCULATIONS OVERVIEW Standard Method and Properties	HiSpeed	FAS RGA	ISO 6974	GPA 2261	GPA 2286	Unit	Temp
ISO 6976							
Compressibility (dry)	√	√	√				15°C
Molar Mass	√	√	√	√	√	g/mol	
Inferior/Superior Cal Value Mol	√	√	√			KJ/mol	15°C
Inferior/Superior Cal Value Mass	√	√	√			MJ/kg	15°C
Inferior/Superior Cal Value Vol (Ideal/Real)	√	√	√			MJ/m3	15°C
Relative Density dry (Ideal/Real)	√	√	√				15°C
Density (Ideal/Real)	√	√	√			kg/m3	15°C
Wobbe Index (Ideal/Real)	√	√	√			MJ/m3	15°C
EN 15984 / DIN 51666							
EN 15984 / DIN 51666 Carbon Content	√	√	√	√	√	g/100 g	
EN 15984 / DIN 51666 Heating value Mol	√	√	√	√	√	KJ/mol	
EN 15984 / DIN 5166 Heating value Mass	√	√	√	√	√	KJ/100g	
GPA 2172							
GPM				√	√	Gal/1000 ft3	60 °F
Compressibility (dry/sat)				√	√		60 °F
Gross Heating Value (dry/sat gas, dry air)				√	√	Btu/ft3	60 °F
Real Gross Heating Value (dry/sat gas, dry air)				√	√	Btu/ft3	60 °F
Nett Heating Value (dry/sat gas, dry air)				√	√	Btu/ft3	60 °F
Real Nett Heating Value (dry/sat gas, dry air)				√	√	Btu/ft3	60 °F
Relative Density dry/sat gas (Ideal/Real)				√	√		60 °F
ASTM D 2598							
Relative density liquid	√	√				kg/m3	60 °F
Vapor Pressure	√	√				psi	100 °F
MON	√	√					
EN 589							
MON	√	√	√	√	√		
Vapor Pressure -10°/-5°/0°/10°/20°/40°	√	√	√	√	√	kPa	
Density acc ISO 8973	√	√	√	√	√	kg/m3	15°C
ISO 8973Me							
Vapor Pressure 37.8°/40°/50°/70°	√	√	√	√	√	kPa	37.8°C
Density	√	√	√	√	√	kg/m3	15°C
Miscellaneous							
Oxygen correction	√	√	√	√	√		
NGL Density	√	√	√	√	√	kg/m3	15°C
CO2 emission factor	√	√	√	√	√		
Viscosity	√	√	√	√	√		15°C
Schilling density	√	√	√	√	√	kg/m3	15°C
Superior calorific value	√	√	√	√	√	BTU/kg	

Due to continuing product development, specifications subject to change at any time without notice.

AC by PAC

AC Analytical Controls® by PAC, has been the recognized leader in chromatography analyzers for gas, naphtha and gasoline streams in crude oil refining since 1981. AC also provides technology for residuals analysis for the hydrocarbon processing industry. Applications cover the entire spectrum of petroleum, petrochemical and refinery, gas and natural gas analysis; ACs Turn-Key Application solutions include the AC Reformulyzer, SimDis, HiSpeed RGA and DHA instruments.