

23.0331



Clarity™

ADVANCED CHROMATOGRAPHY SOFTWARE

NGA – NATURAL GAS ANALYSIS

CLARITY EXTENSION

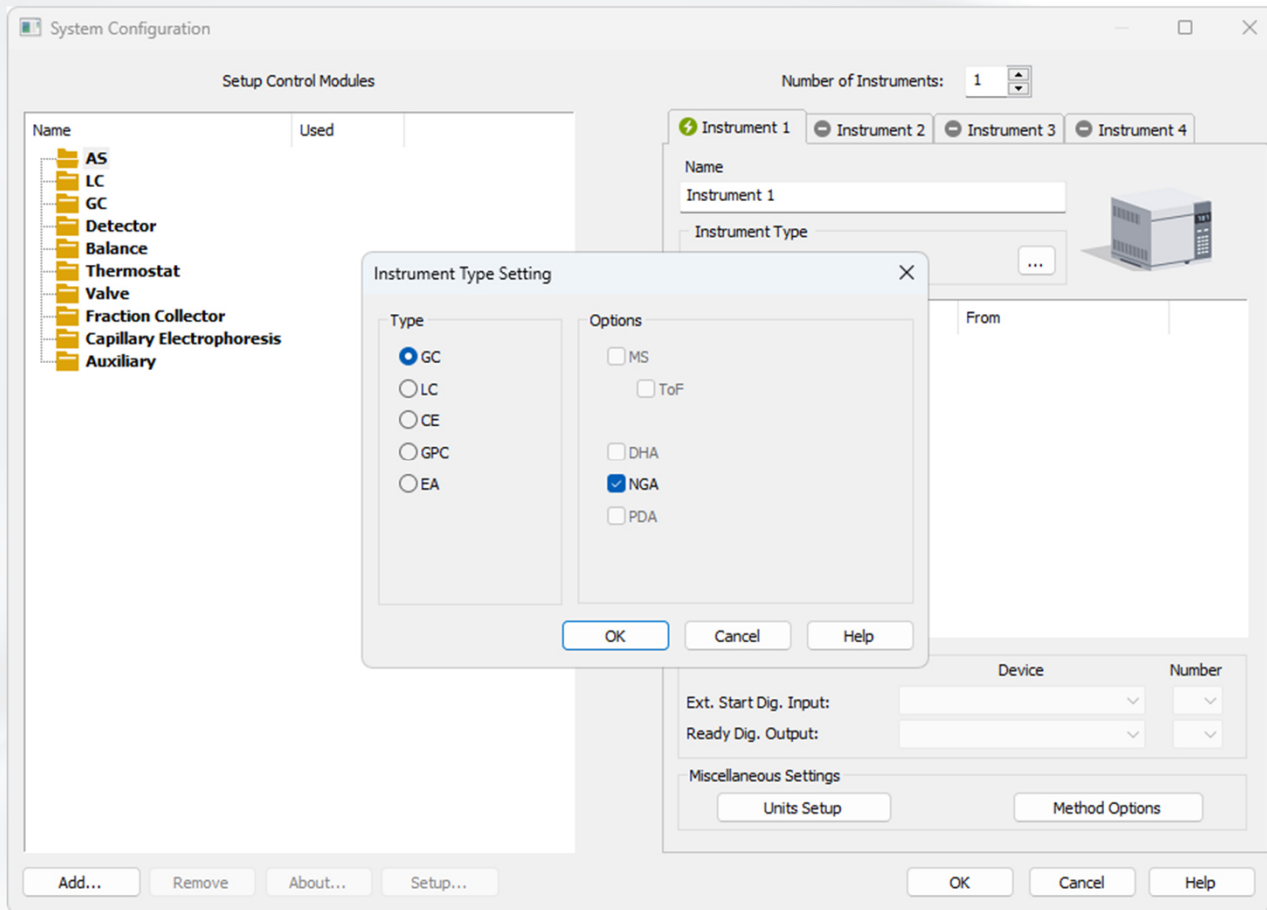
NGA EXTENSION

OVERVIEW

- Natural or LPG Gas Analysis
- Calculates the Calorific values according to
 - Natural Gas ISO 6976-16 (and 95)
 - Natural Gas ASTM D 3588-98 and GPA 2172-09
 - LPG ASTM D 2598-02 / 2421-02
 - LPG ISO 8973-97 / EN589-04
- Multiple detectors supported
- Individual or Summary results
- Export of results

 <https://www.dataapex.com/product/extensions-NGA>

SYSTEM CONFIGURATION



- NGA Instrument is configured in the System Configuration window
- NGA can be enabled on a station where p/n A32 is purchased

SETTINGS ON THE NGA TAB

NGA Settings

NGA Method: C:\Clarity\DataFiles\DEMO_NGA\Demo_nga.nga (MODIFIED)

New Open... Save Save As...

Link Table

Edit Link Table...

Choose a Norm: Natural Gas ISO 6976-16

Source Amount Molar Percent

Calorific Value Calculation Basis Molar Basis

Combustion Temperature 15 °C

Metering Temperature 15 °C

Ideal / Real Gas Ideal Gas

Gas Analysis on Dry Basis

Metering Pressure [kPa] 101,325

NST Results NGA NGA Summary

Overlay

- NGA Result tab in the chromatogram window
- Select the NGA method
- Edit Link Table...
- Choose a Norm and set preferences

NGA AMOUNTS


NGA Amounts (Data\nga - 1_9_2009 5_42_17 PM)

	Compound Name	Signal	Amount [Mole %]	Amount [Molar %]
1	Methane	FID	98,817	97,65
2	Ethane	FID	0,027	0,03
3	Propane	FID	0,000	0,00
4	i-Butane	FID		-
5	n-Butane	FID		
6	Neopentane	FID		-
7	i-pentane	FID		-
8	n-pentane	FID		
9	hexane	FID	0,003	?
10	Nitrogen	TCD	2,328	2,30
11	CO2	TCD	0,024	0,02
			101,199	100,00

NGA Results NGA Amounts

- Display the amounts and Amount% calculated over all signals
- Shows warnings for individual compounds:
 - Compound name not found in NGA table
 - Compound not used in selected norm
 - The same compound used on several signals

NGA RESULTS

Results for Norm: Natural Gas ISO 6976-95
Chromatogram Name: Data\nga - 1_9_2009 5_42_17 PM
Norm Table Signature Status:  Valid (Last Signed by: DataApex, Ltd.)

NGA Results

Property	Value	Units
Compound Links	1 Errors	
Gas	Ideal	
Mean Molecular Weight	16,329	
Relative Density	0,5638	
Density	0,6906	kg/m3
Superior Calorific Value	871,01	kJ/mol
Inferior Calorific Value	784,20	kJ/mol
Wobbe Index	49,06	MJ/m3

NGA Results NGA Amounts

- Shows the calculated results
- Shows the method and norm info

NGA CALIBRATION

- > Compound names from the NGA Norm table are offered in calibration
- > In the Link Table you can link different names to the compounds listed in the norm
- > In multisignal chromatograms each compound could be used on one signal only

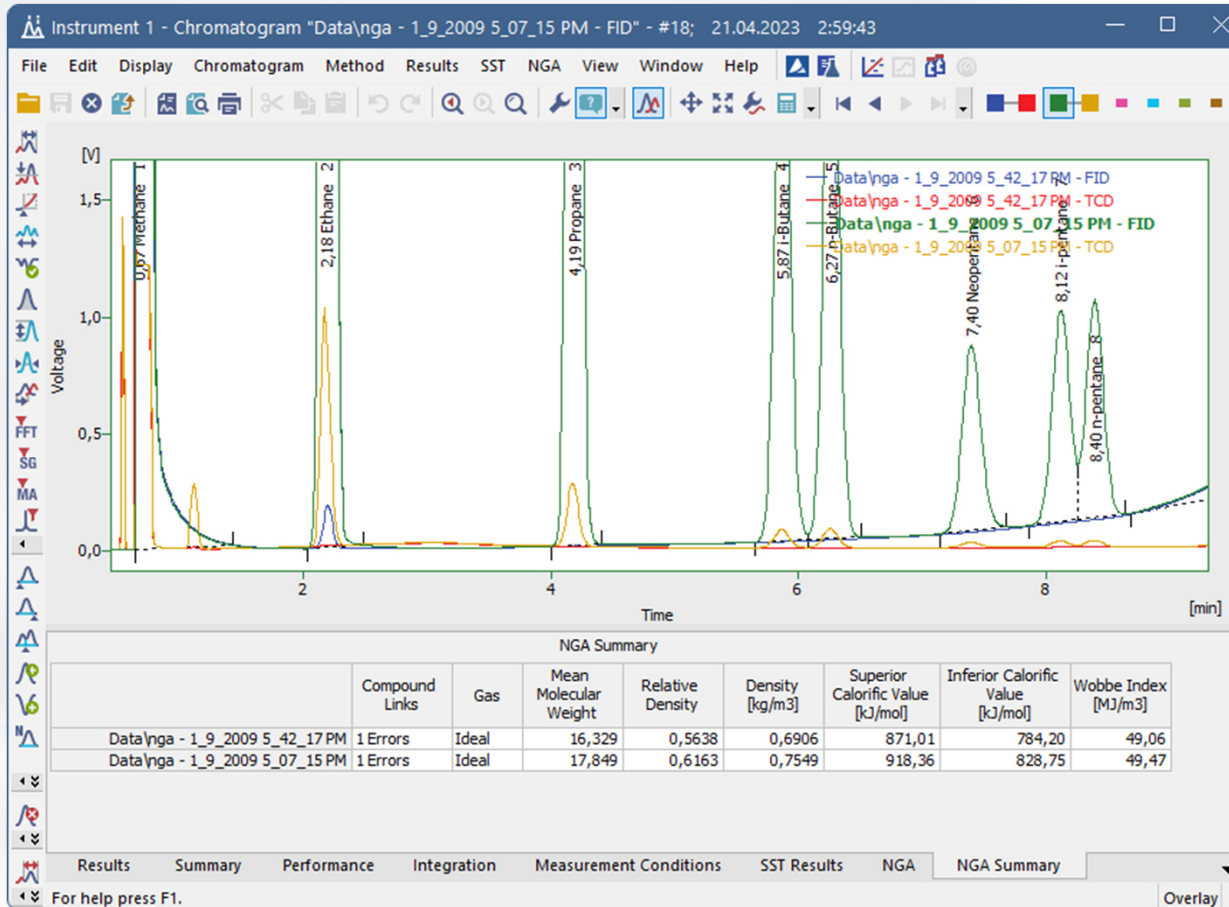
The screenshot displays the 'Instrument 1 - Calibration Calib\nga <-- ESTD' software window. The 'Link Table' dialog box is open, showing a table with two columns: 'Compound Name' and 'Name in Norms'. The table contains two entries: 'CO2' linked to 'Carbon dioxide' and 'Neopentane' linked to '2,2-Dimethylpropane'. The dialog also includes 'Add...', 'Remove', 'OK', 'Cancel', and 'Help' buttons.

The background window shows the 'Calibration Summary Table (E)' with the following data:

Used	Compound Name	Reten. Time	Left Window	Right Window	Peak Type	Named Groups	Is ISTD
<input type="checkbox"/>	Nitrogen	0,547	0,040 min	0,040 min	Ordnr		None
<input checked="" type="checkbox"/>	Methane	0,670	0,040 min	0,040 min	Ordnr		None
<input type="checkbox"/>	CO2	1,123	0,200 min	0,200 min	Ordnr		None
<input checked="" type="checkbox"/>	Ethane	2,183	0,200 min	0,200 min	Ordnr		None
<input checked="" type="checkbox"/>	Propane	4,187	0,200 min	0,200 min	Ordnr		None
<input checked="" type="checkbox"/>	i-Butane	5,873	0,200 min	0,200 min	Ordnr		None
<input checked="" type="checkbox"/>	n-Butane	6,267	0,200 min	0,200 min	Ordnr		None
<input checked="" type="checkbox"/>	Neopentane	7,400	0,200 min	0,200 min	Ordnr		None
<input checked="" type="checkbox"/>	Neopentane	8,123	0,100 min	0,100 min	Ordnr		None
<input checked="" type="checkbox"/>	1,2-Butadiene	8,397	0,100 min	0,100 min	Ordnr		None
<input checked="" type="checkbox"/>	1,2-Pentadiene	10,247	0,200 min	0,200 min	Ordnr		None
<input type="checkbox"/>	1,3-Butadiene						
<input type="checkbox"/>	1-Butene						
<input type="checkbox"/>	1-cis-Pentadiene						
<input type="checkbox"/>	1-Pentene						

The 'Compounds' tab at the bottom lists: Nitrogen, Methane, CO2, Ethane, Propane, i-Butane, n-Butane, Neopentane.

NGA SUMMARY



- NGA results are shown for all chromatograms in overlay

NGA REPORTS & EXPORTS

- Options for NGA in the Report Setup and in the Export Data windows

The image shows two overlapping dialog boxes from a software application. The background dialog is 'Report Setup Chromatogram' and the foreground dialog is 'Export Data'.

Report Setup Chromatogram

- Page Setup**
 - Lab. Header:
 - Report Header:
 - Method:
 - Calibration:
 - Chromatogram:
 - Results:
 - Sequence:
 - SST:
 - NGA:
 - Audit & Signatures:
 - Lab. Footer:
- Print**
 - Print
 - On New Page
- Chromatograms**
 - All
 - Only Active
- Info**
 - Info
 - Results
 - Amounts
 - NGA Method
 - Link Table
 - Summary Table
- Print Options**
 - Print User Column Formulas

Export Data

- Export Content**
 - Result Table
 - In Fixed Format
 - All Signals Results Table
 - Special Results
 - Summary Table
 - Column
 - Moments
 - Calculation Parameters
 - Chromatogram
 - Chromatogram Header
 - NGA Amounts
 - NGA Summary
 - DHA Results
 - DHA Group Results
- Table Headers**
 - Table Headers
 - Full Format

- Chromatogram**
- All Data
- Displayed Data
- X Axis
- Time Step: 0 min
- Character Encoding: ANSI
- Text Format**
- Field Separator
 - Fixed Width
 - Delimited by: <TAB>
- Decimal Separator: <Window's Locale>
- Text Qualifier: <None>
- Export to**
- Clipboard
- Text File
 - .txt
 - .csv
- Excel
 - Excel Workbook (*.xlsx)
 - Excel 97-2003 Workbook (*.xls)
- dBase File (Result table only)
- Append (Text and dBase Files only)
- File Name: []
- Buttons: Export, OK, Cancel, Help

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THANK YOU FOR YOUR ATTENTION