Data Sheet
2101178-AD

NGC 8206 Component Range

Analyzer Products
Btu Systems

PURPOSE

This application data sheet is designed to give the user information about the ranges, repeatability, and linearity over which the NGC 8206 can be applied. It is to be used as a supplement to the NGC 8206 datasheet. (Available on www.abb.com/totalflow)

The NGC 8206 chromatography application has been optimized for the analysis of Natural Gas in order to calculate heating value as it applies to both custody transfer and Metrology measurement applications.

The repeatability, linearity, and range over which this GC is applicable has been increased by the application of the following technologies.

First, the analysis cycle time has been chosen to give the best component separation to provide repeatability while not limiting the range of heating value measurement. (See chromatograms below)

The detector circuit is based on an electronic design which provides for constant bead temperature. The constant temperature operation avoids non-linear responses that help to extend the linear range. Another key advantage of this design is that it allows for the loss of carrier without damaging the detectors (there is no need to disconnect power to the oven or beads).

The NGC 8206 utilizes an exponential response factor rather than the conventional linear response factor. In order to maximize the linear dynamic range, the calibration curve needs to fit the actual detector response curve as closely as possible. Totalflow has achieved this by replacing the single point linear curve with a multipoint exponential curve. The chart shown on the next page is an example of the matrix of gases used during the NGC runout tests to verify these curves before shipment. This is why the NGC has better linearity than most GC's.

Also, the electronics use a high precision 24 bit A/D converter for each bead to allow more range-ability without the use of pre-amps.

The use of all these technologies results in an industry leading GC with unmatched repeatability and a very wide range of applicability.

Note about this application: The typical carrier consumption with this application is about 12 to 15 cc/min. There is an interference from H2S and it should be limited to 0.05 Mol% or 500 ppm.

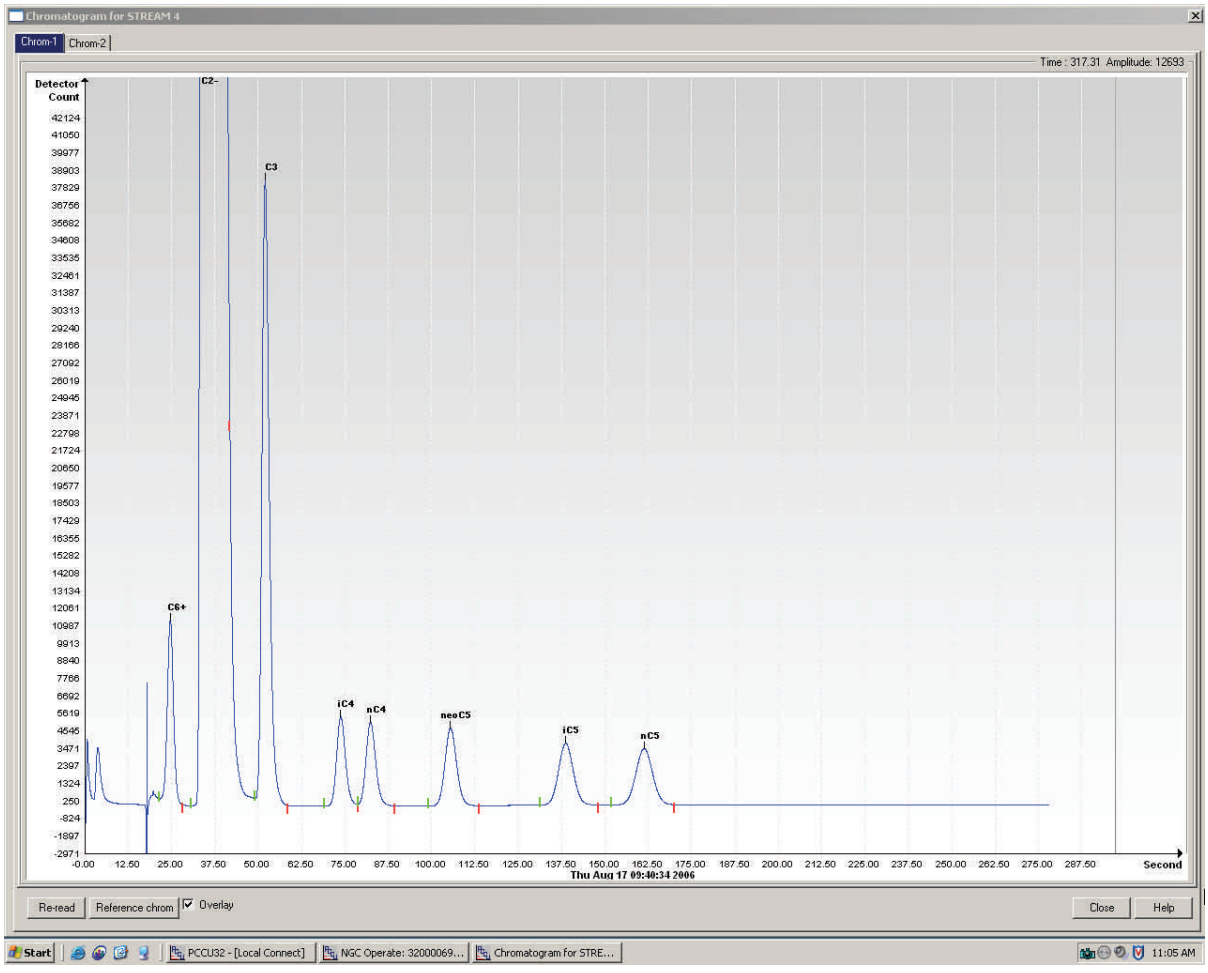
Application: C6+ Btu

Carrier Gas: Helium

Oven Temperature 140°F

	Component	Symbol	Measured Range (Mol%)	MDQ (Mol%)	Repeatability
Detector 1					
	Propane	C3	.005-100	0.001	
	Isobutane	IC4	.005-15	0.001	
	Butane	NC4	.005-15	0.001	
	Neopentane	NeoC5	.005-10	0.001	
	Isopentane	IC5	.005-10	0.001	
	Pentane	NC5	.005-10	0.001	
	C6 Plus	C6+	.005-5	0.001	

Detector 1 Chromatogram

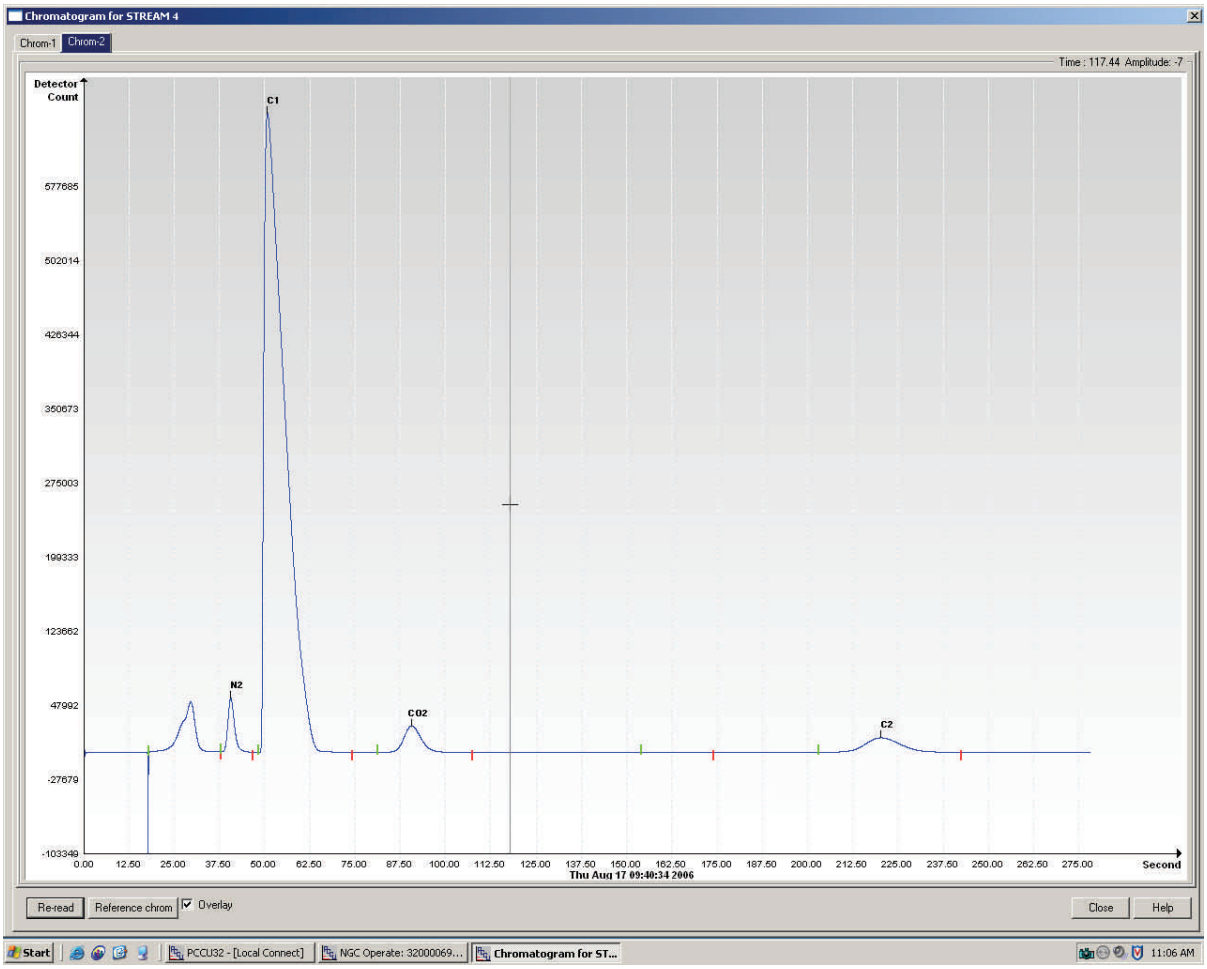


Application: C6+ Btu

Carrier Gas: Helium

Oven Temperature 140°F

	Component	Symbol	Measured Range (Mol%)	MDQ (Mol%)	Repeatability (%)
Detector 2					
	Nitrogen	N2	.01-100	0.005	
	Methane	C1	.01-100	0.005	
	Carbon Dioxide	CO2	.01-100	0.005	
	Ethane	C2	.01-50	0.005	
	Calorific Value (ambient, fixed temperature)	Mj/Btu			+/- 0.0125
	Calorific Value (0-130°F)	Mj/Btu			+/- 0.025



Detector 2 Chromatogram

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