



dig
Dolan Integration Group

Geochemistry for Energy

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Hydrocarbon Gas Composition and Stable Isotopes Data and Interpretation

Job #: 18071735
Lab #: DIG-015527
Client: Air Pollution Testing
Well Name: Johnstone 20-1 Wellhead Gas

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SAMPLE INFORMATION						COMPLETE GAS ANALYSIS															HYDROCARBON GAS ANALYSIS (normalized to total HC content)										BTU CONTENT*
Job Number	Lab Number	Well Name	Sample Type	Sample Date	Sample Time	GC Date	N ₂ ppm	O ₂ + Ar ppm	CO ₂ ppm	C ₁ ppm	C ₂ ppm	C ₃ ppm	iC ₄ ppm	nC ₄ ppm	iC ₅ ppm	nC ₅ ppm	C ₆ + ppm	C ₂ H ₄ ppm	He ppm	H ₂ ppm	C ₁ mol%	C ₂ mol%	C ₃ mol%	iC ₄ mol%	nC ₄ mol%	iC ₅ mol%	nC ₅ mol%	C ₆ + mol%	Total Gas BTU/R ³		
18071735	DIG-015527	Johnstone 20-1 Wellhead Gas		07/23/18	9:44	7/24/2018	146371	42667	24029	647629	103391	34111	3044	5608	2050	1521	2609				81.0	12.92	4.26	0.38	0.70	0.26	0.19	0.33	965		

SAMPLE INFORMATION						HYDROCARBON RATIOS				STABLE ISOTOPE ANALYSIS											Comments
Job Number	Lab Number	Well Name	Sample Type	Sample Date	Sample Time	Total HC ppm	Wetness % C ₂ to C ₅	C ₁ /C ₂ +C ₃ mol/mol	Balance Ratio C ₁ +C ₂ /C ₃ -C ₅	Mass Spec Date	δ ¹³ C ₁ ‰ VPDB	δ ¹³ C ₂ ‰ VPDB	δ ¹³ C ₃ ‰ VPDB	δ ¹³ iC ₄ ‰ VPDB	δ ¹³ nC ₄ ‰ VPDB	δ ¹³ iC ₅ ‰ VPDB	δ ¹³ nC ₅ ‰ VPDB	δ ¹³ CO ₂ ‰ VPDB	δD ‰ VSMOW		
18071735	DIG-015527	Johnstone 20-1 Wellhead Gas		07/23/18	9:44	799964	19.0	4.7	16.2	7/25/2018	-48.8	-31.8	-26.1	-27.5	-24.2			5.1	-262		

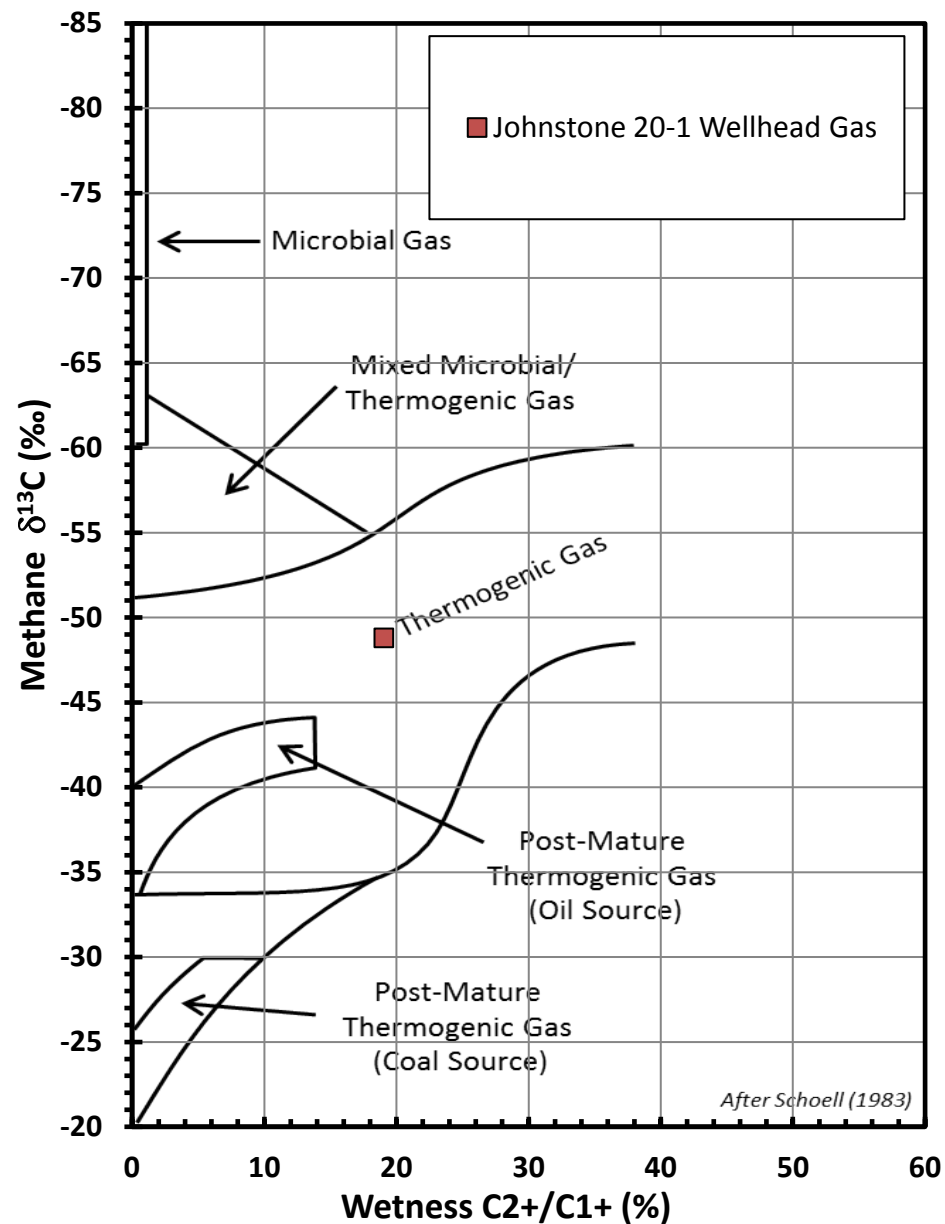
Stable isotope results based on multi-point laboratory calibration
low signal; interpret with caution
Precision δD < 5 ‰

* As ideal gas, with gas concentrations normalized to 100%;
calculations based on GPA 2145-09 physical constants.

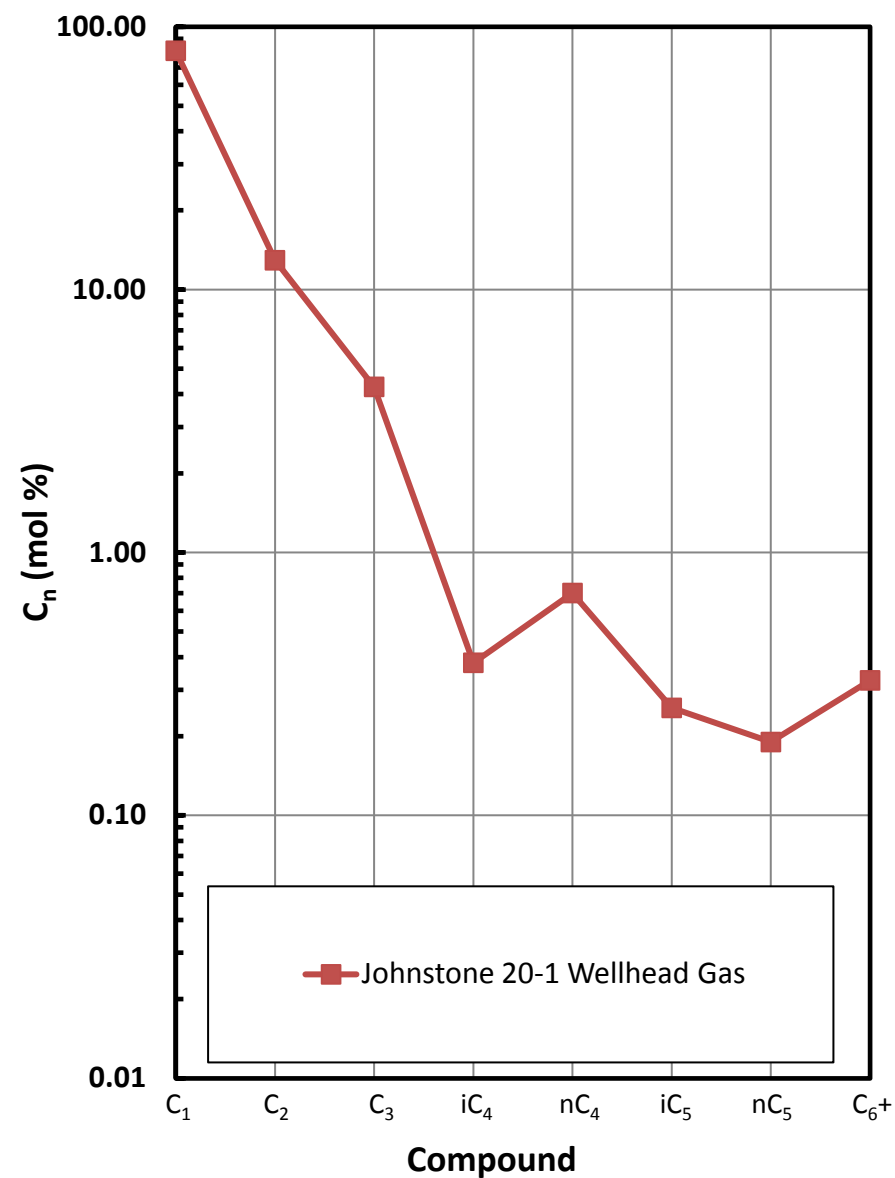
SPECIFIC GRAVITY*	
Total Gas Spec Grav	HCs only Spec Grav
0.767	0.690

INTERPRETIVE PLOTS

Methane $\delta^{13}\text{C}$ vs Wetness Genetic Classification Plot

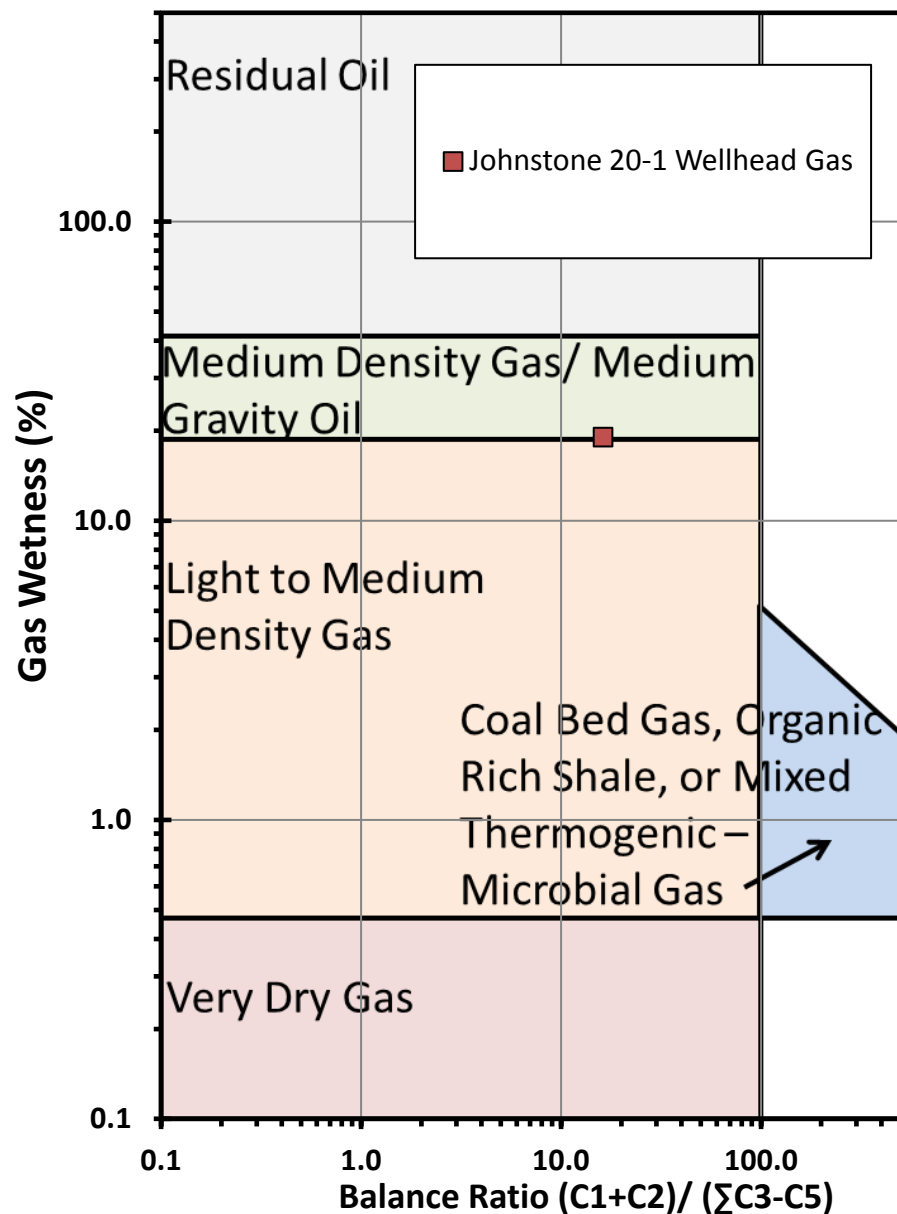


Hydrocarbon Composition Plot

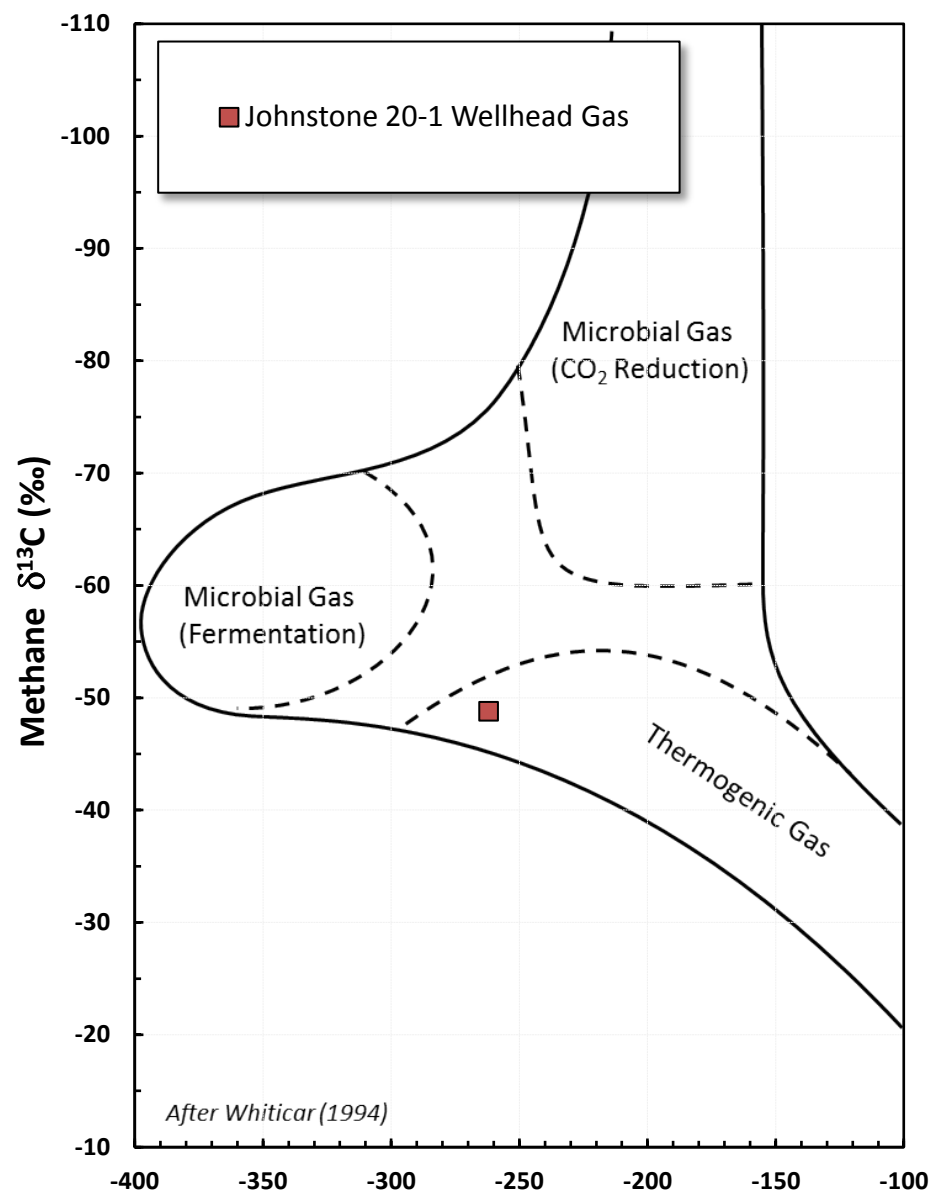


INTERPRETIVE PLOTS

Haworth Ratio Plot - Characterization of Hydrocarbon Type



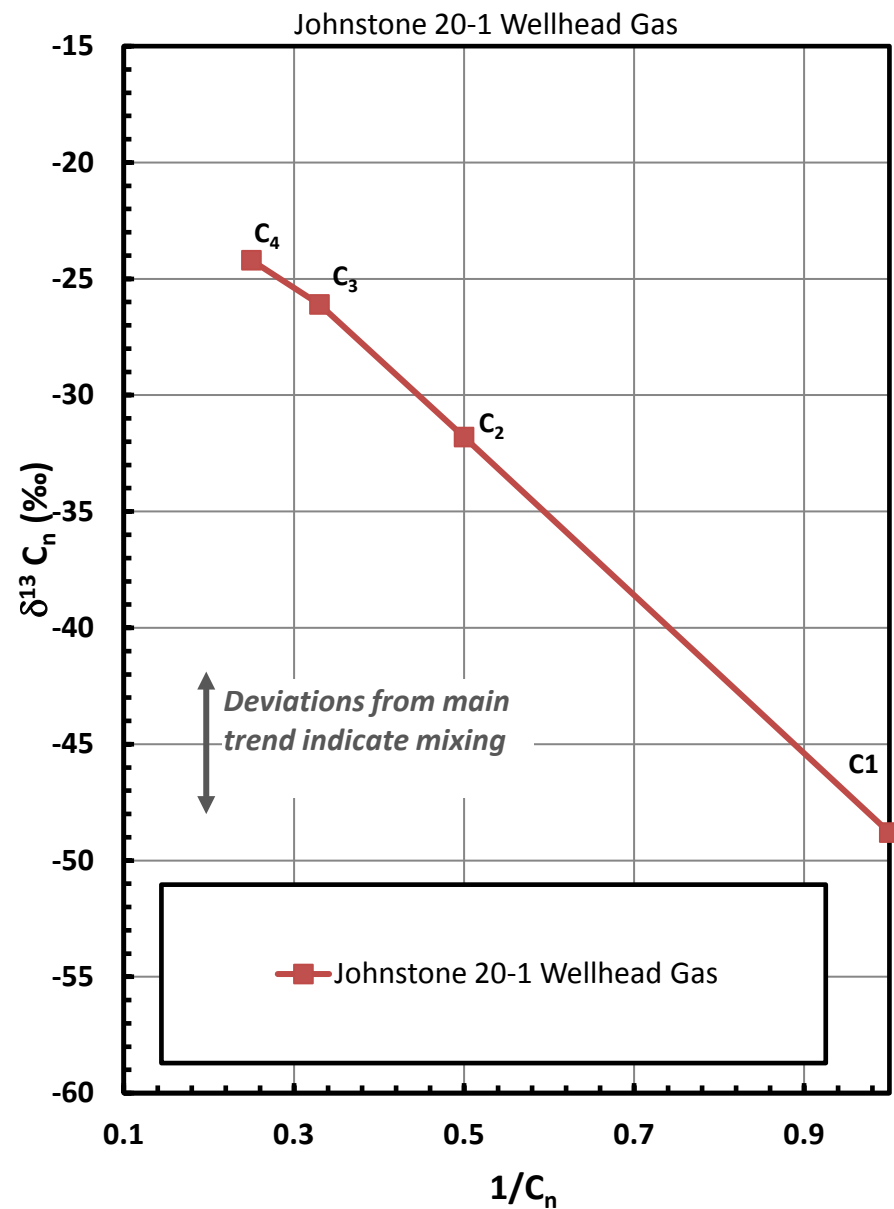
Methane $\delta^{13}C$ vs δD Genetic Classification Plot



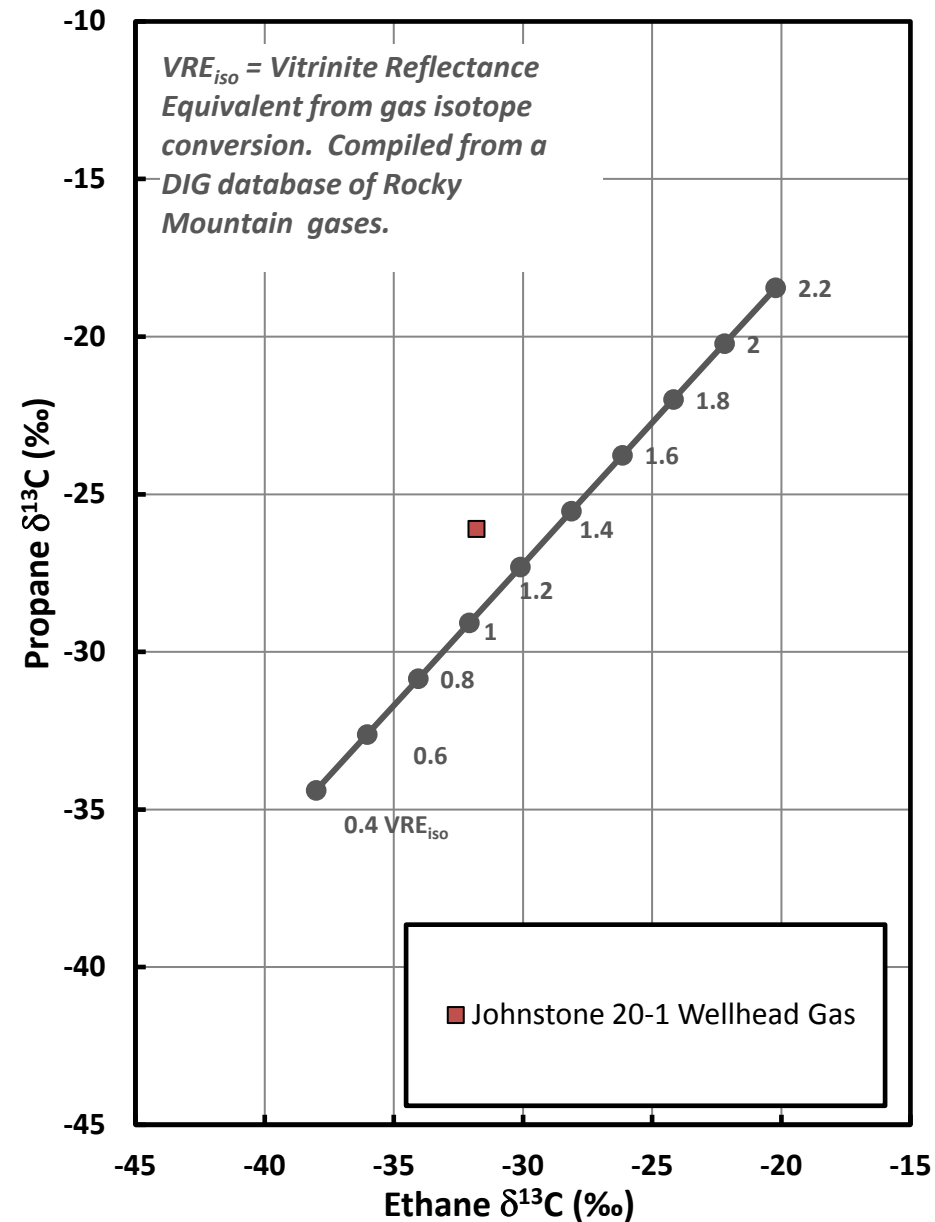
Methane δD (‰)

INTERPRETIVE PLOTS

Mixing Plot

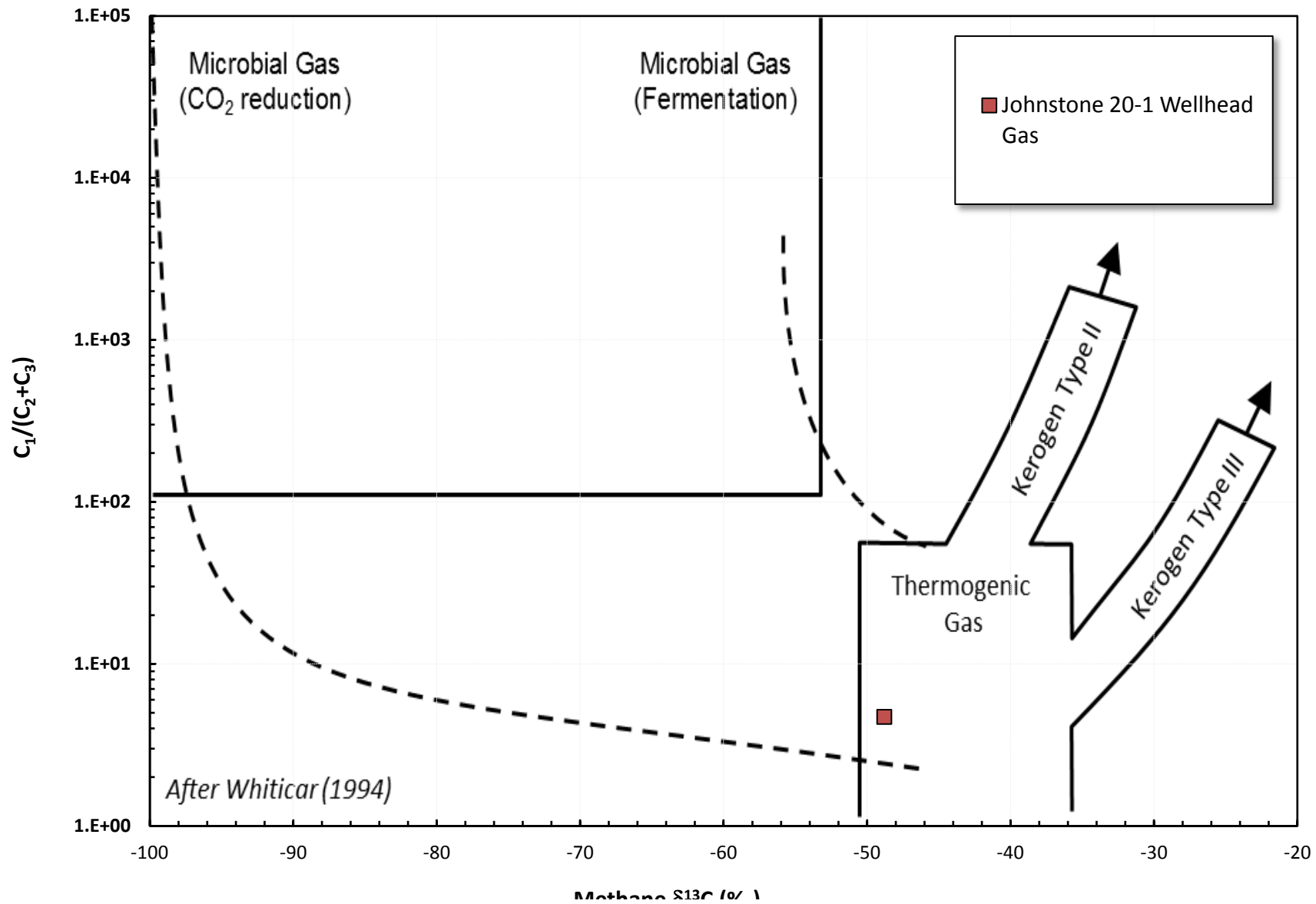


Ethane - Propane Maturity Plot



INTERPRETIVE PLOTS

Methane $\delta^{13}\text{C}$ vs $\text{C}_1/(\text{C}_2+\text{C}_3)$ Genetic Classification Plot



viethane 0~C (700)

