



dig
Dolan Integration Group

Geochemistry for Energy

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p: 303.531.2030

Hydrocarbon Gas Composition and Stable Isotopes Data and Interpretation

Job #: 22027167
Lab #: DIG-027381
Client: Summit Scientific
Sample Name(s): INF-022322-1153

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Analytical Report



Job #: 22027167
 Lab #: DIG-027381
 Client: Summit Scientific
 Sample Name: INF-022322-1153
 Date Sampled: 02/23/22
 Time Sampled: 11:53
 Sample Description: Isoflask
 Sampling Notes:
 Date Received: 02/24/22
 Date Analyzed: Gas Composition: 02/24/22 $\delta^{13}\text{C}$: 02/26/22 δD : 02/24/22
 Date Reported: 02/28/22
 Comments:

Measured Values:	Measured ppm	Analyte mol % ^a	HC mol %	$\delta^{13}\text{C}$ ‰ VPDB	δD ‰ VSMOW	Comments
Nitrogen (N ₂)	403301	41.13	-	-	-	
Oxygen + Argon (O ₂ +Ar)	54283	5.54	-	-	-	
Carbon Dioxide (CO ₂)	841	0.09	-	-	-	
Helium (He) ^b	na	na	-	-	-	Helium added to create headspace.
Hydrogen (H ₂)	na	na	-	-	-	
Methane (CH ₄)	464662	47.38	88.98	-61.8	-267	
Ethane (C ₂ H ₆)	36404	3.71	6.97		-	
Ethene (C ₂ H ₄)	nd	nd	nd		-	
Propane (C ₃ H ₈)	15681	1.60	3.00		-	
iso-Butane (C ₄ H ₁₀)	1886	0.19	0.36		-	
n-Butane (C ₄ H ₁₀)	2710	0.28	0.52		-	
iso-Pentane (C ₅ H ₁₂)	434	0.04	0.08		-	
n-Pentane (C ₅ H ₁₂)	305	0.03	0.06		-	
Hexanes + (C ₆ H ₁₄)	115	0.01	0.02		-	

Calculated Values:	
Total HCs (ppm)	522197
Gas Wetness (mol % C ₂ +C ₁ +))	11.02
C ₁ /(C ₂ +C ₃) (mol/mol)	9

^a Analyte concentrations normalized to 100% (Mol. % is approximately equal to Vol. %)

^b Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

HC= Hydrocarbons

nd = not detected

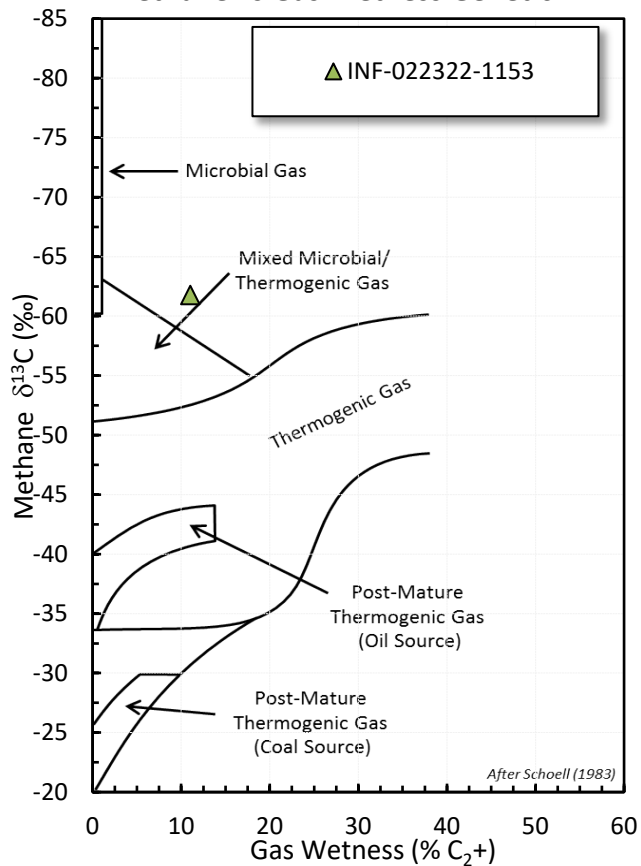
na = not analyzed

Stable isotope results based on multi-point laboratory calibration

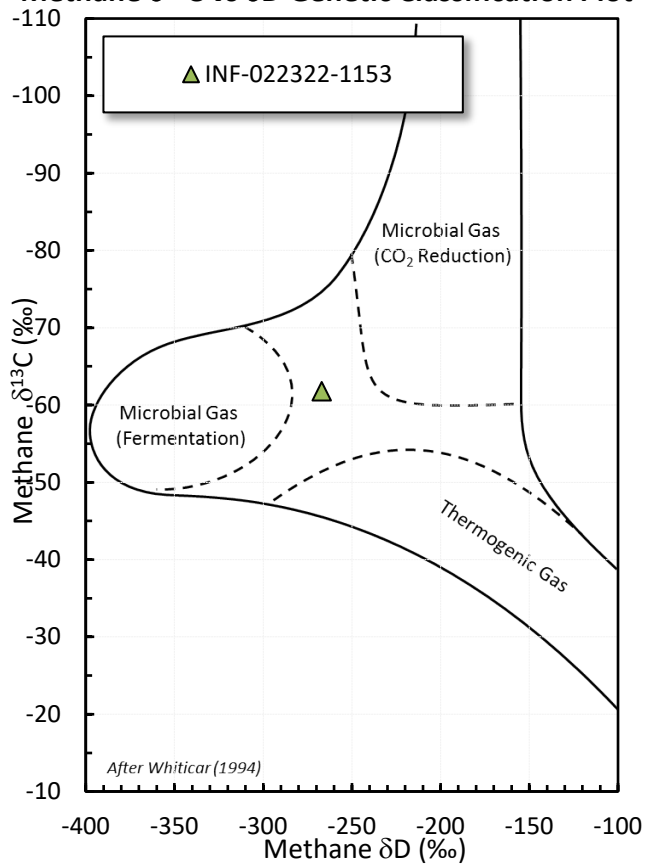
Error $\delta^{13}\text{C}$ < 0.5 ‰

Error δD < 5.0 ‰

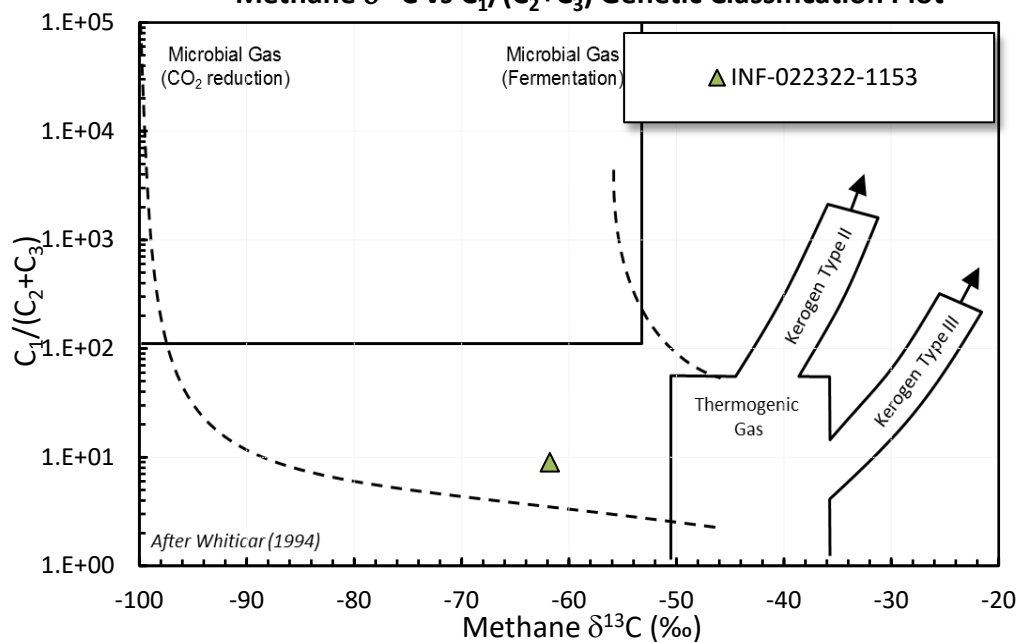
Methane vs Gas Wetness Genetic



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



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



Chain of Custody Form



JOB 22027167

DIG - 027



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Turnaround Time**:	<input type="radio"/> Standard (≤ 10 Business days)	<input type="radio"/> Rush (≤ 5 Business days)	<input checked="" type="radio"/>
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Container Number	Sample Identification	Date Sampled	Time	Sample Type*	Gas Composition	d13C of Methane (C1)	d13C of Ethane (C2)	
	INF-022322-1153	2/23/22	11:53	Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Chain of Custody Record				Comments:	
Relinquished by Signature	Company	Date	Time	Received by Signature	
	Summit Scientific	2/24/22	12:19		

*Gas composition vs RSK-175 - Gas composition is a basic analysis of the concentration (ppm) of gases within the headspace of the sample (headspace is created at the lab calculations to give the total dissolved gas of each species in the water sample (mg/L). Why one or the other? Gas composition gives us a quick, general look at relative concentrations of gas present in the sample (headspace and dissolved in the water). Questions? Give us a call at 303-531-2030.

** Rush and Expedited Rush turnaround time analysis will incur additional costs at 2x and 3x the standard turnaround time pricing.