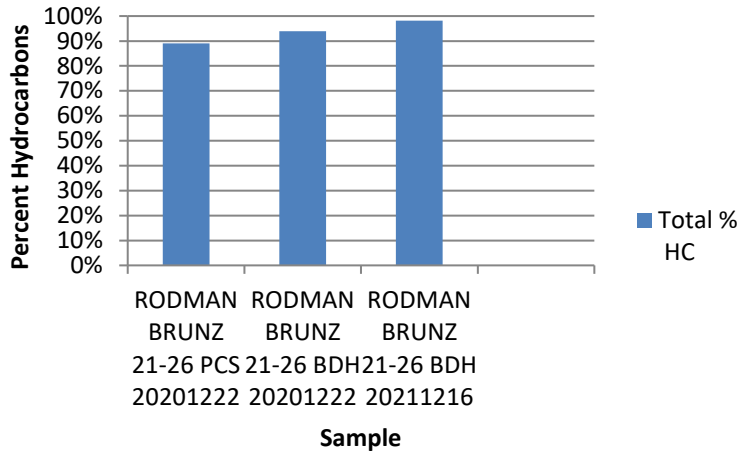


FacilityID	SampleName	FacilityName	ComplaintNumber	UtmX83
268638	RODMAN BRUNZ 21-26 PCS 20201222	RODMAN BRUNZ 21-26		521610
268638	RODMAN BRUNZ 21-26 BDH 20201222	RODMAN BRUNZ 21-26		521610
268638	RODMAN BRUNZ 21-26 BDH 20211216	RODMAN BRUNZ 21-26		521610



### Total Percent Hydrocarbons



UtmY83	Formation	SampleTyp	SampleID	Date	Mol%_Nitr	Mol%_Oxy	Mol%_Argc	Mol%_O2+AR
4440541	J-CDL	PCS	623287	12/22/2020	7.09	1.9	0.0809	
4440541	J-CDL	BDH	623288	12/22/2020	4.77	1.22	0.0559	
4440541	J-CDL	BDH	631627	12/16/2021	0.869			0.063



Mol%_Cart	Mol%_Cart	Mol%_Heli	Mol%_hyd	Delta 13 C1	Delta D C1	Mol%_Methane	Mol%_Ethane
1.79	0	0.0093	0.0295	-48.6	-262	67.92	12.35
0.02	0	0.0088	0.0426	-48.7	-263	66.21	13.97
0.901		0	0.066	-48.6	-259	75.736	13.128



Mol%_Ethene	Mol%_Propane	Mol%_Butane	Mol%_IsoButane	Mol%_N_Pentane
0.0004	5.9	0.756	1.76	0.246
0.0004	8.03	1.27	3.12	0.693
0	5.79	0.77	1.967	0.371



Gas  
Wetness  
(mol % C2+/C1+)

Mol%_IsoPentane	Mol%_C6+
0.159	0.0048
0.54	0.0449
0.296	0.041

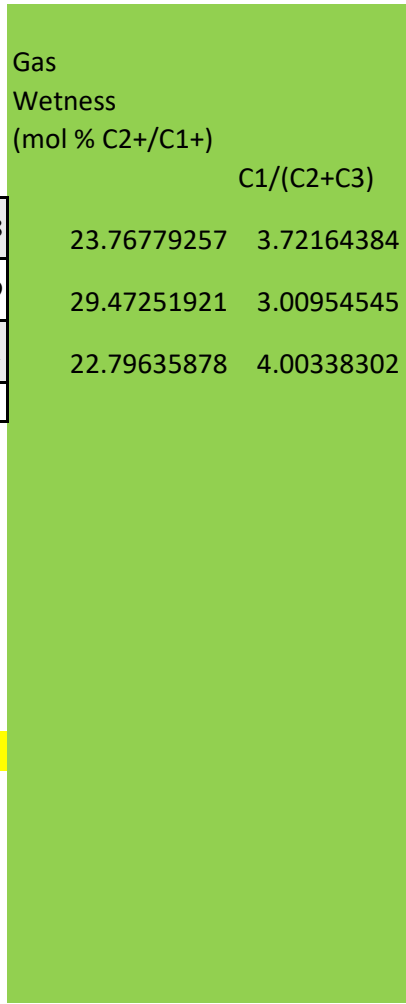
C1/(C2+C3)

23.76779257 3.72164384  
29.47251921 3.00954545  
22.79635878 4.00338302

Total HC

Mol%\_Methane

89.0962 76.23220743  
93.8783 70.52748079  
98.099 77.20364122



Mol%_Ethane	Mol%_Ethene	Mol%_Propane	Mol%_Butane	Mol%_IsoButane	Mol%_Pentane
13.8614217		6.622055711	0.848521037	1.97539289	0.276106052
14.88096823		8.553627409	1.352815294	3.323451746	0.738189763
13.38239941		5.902200838	0.784921355	2.005117279	0.37818938

Mol%_N_IsoPentane	Mol%_C6+	Total % HC	C2/C3
0.178458789	0.005387435	89%	2.09322
0.575212802	0.047827879	94%	1.739726
0.301736001	0.041794514	98%	2.267358

Chung Plot Worksheet

Cn	1/Cn
Methane	1
Ethane	0.5
Propane	0.33
Butane	0.25
Isobutane	0.25
Pentane	0.2
Isopentane	0.2

FacilityID	SampleName	SampleID	Delta 13 C1	Delta 13 C2
268638	RODMAN BRUNZ 21-26 PCS	623287	-48.6	-33.3
268638	RODMAN BRUNZ 21-26 BDH	623288	-48.7	-33.7
268638	RODMAN BRUNZ 21-26 BDH	631627	-48.6	-33.1

Delta 13 C3 Delta\_13\_NC4 Delta\_13\_IC4 Delta\_13\_IC5 Delta\_13\_NC5

D13C3-D13c2

-29.8	-28.4	-31.7	-28.1	-27.2
-29.9	-28.3	-31.7	-28.5	-27.6
-29.5	-28.5	-31	-29.3	-30.2

3.5

3.8

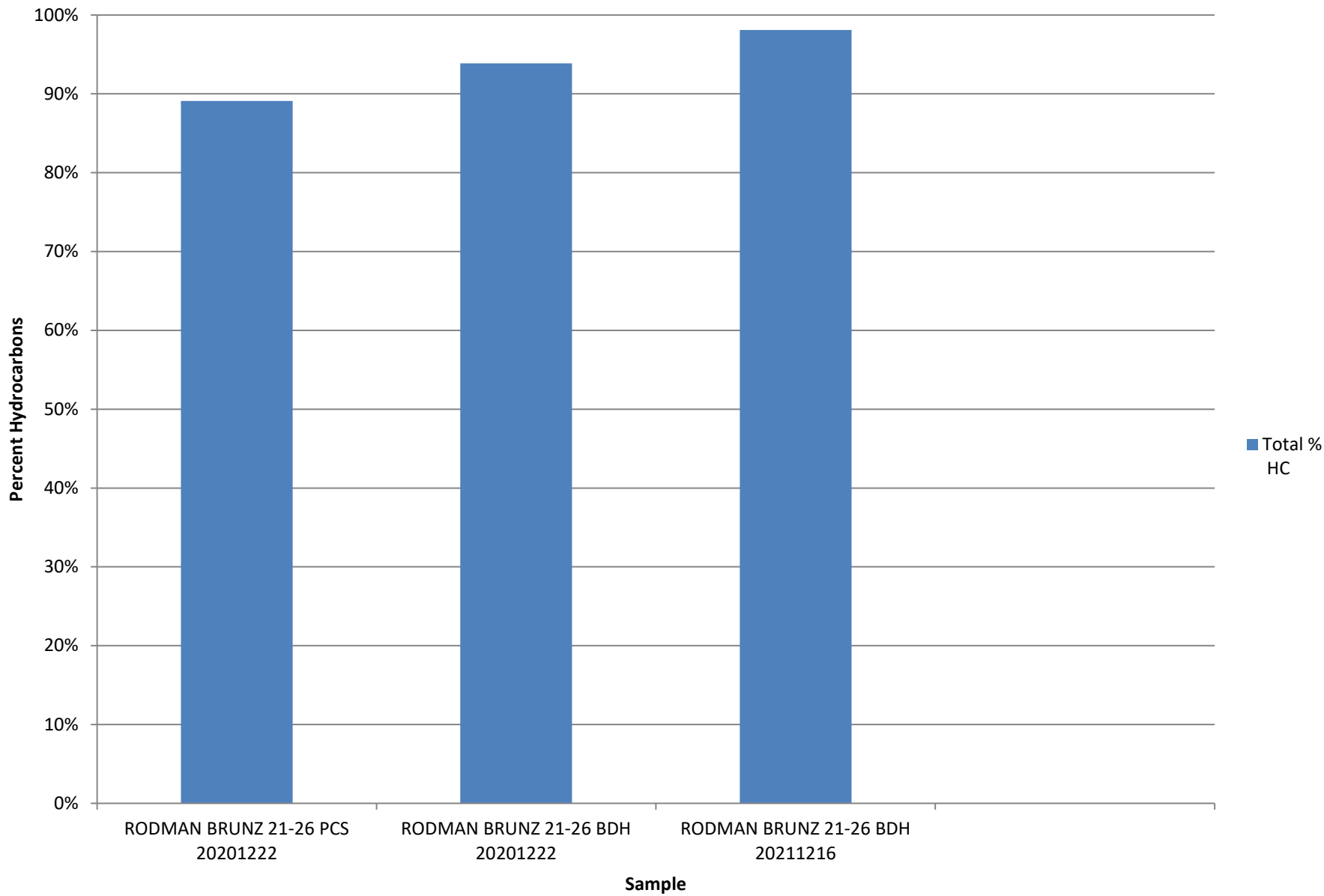
3.6



prod\_casin tubing1 tubing2 inter\_casing

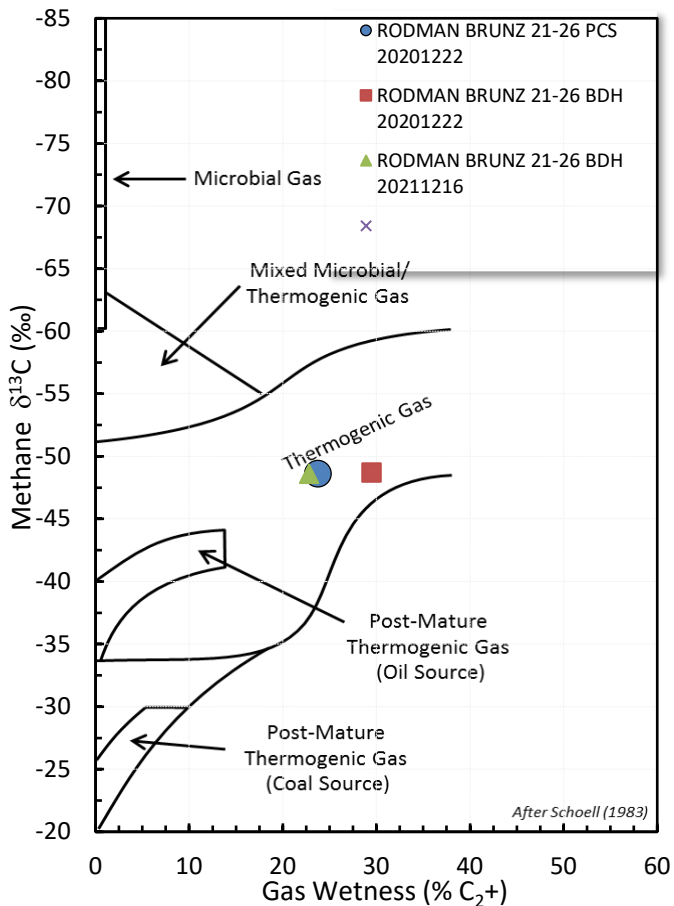
535	501		
639	593		
0			

# Total Percent Hydrocarbons

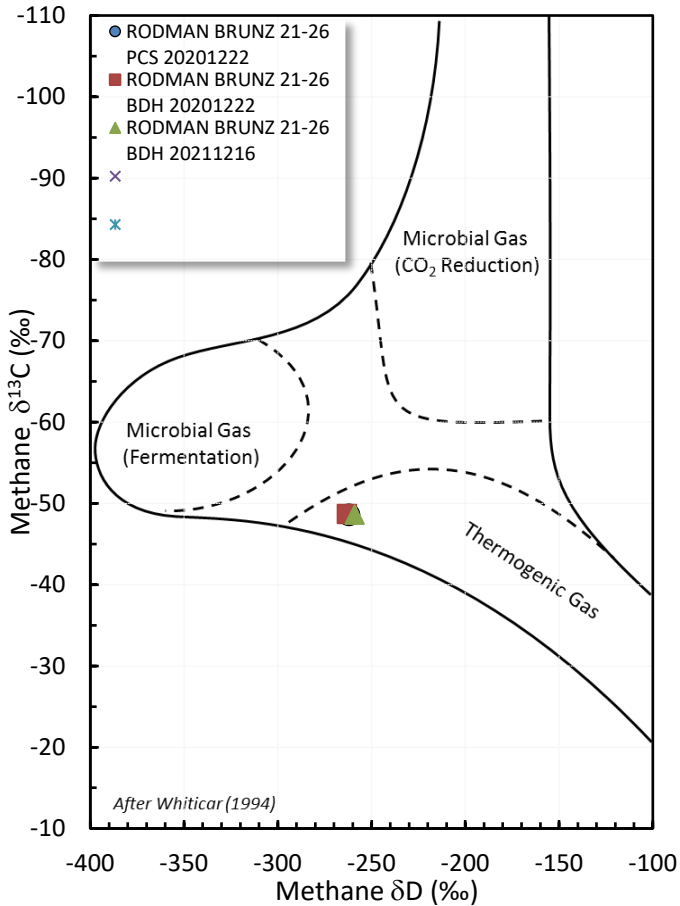


# Stable Isotope Interpretive Plots

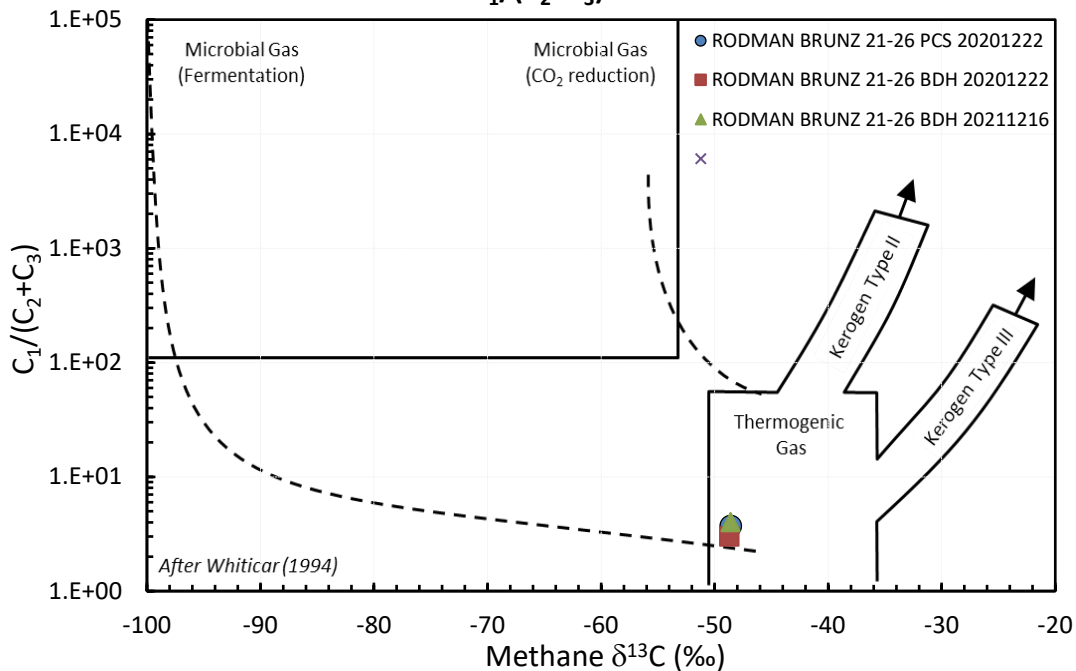
## Methane vs Gas Wetness Genetic Classification



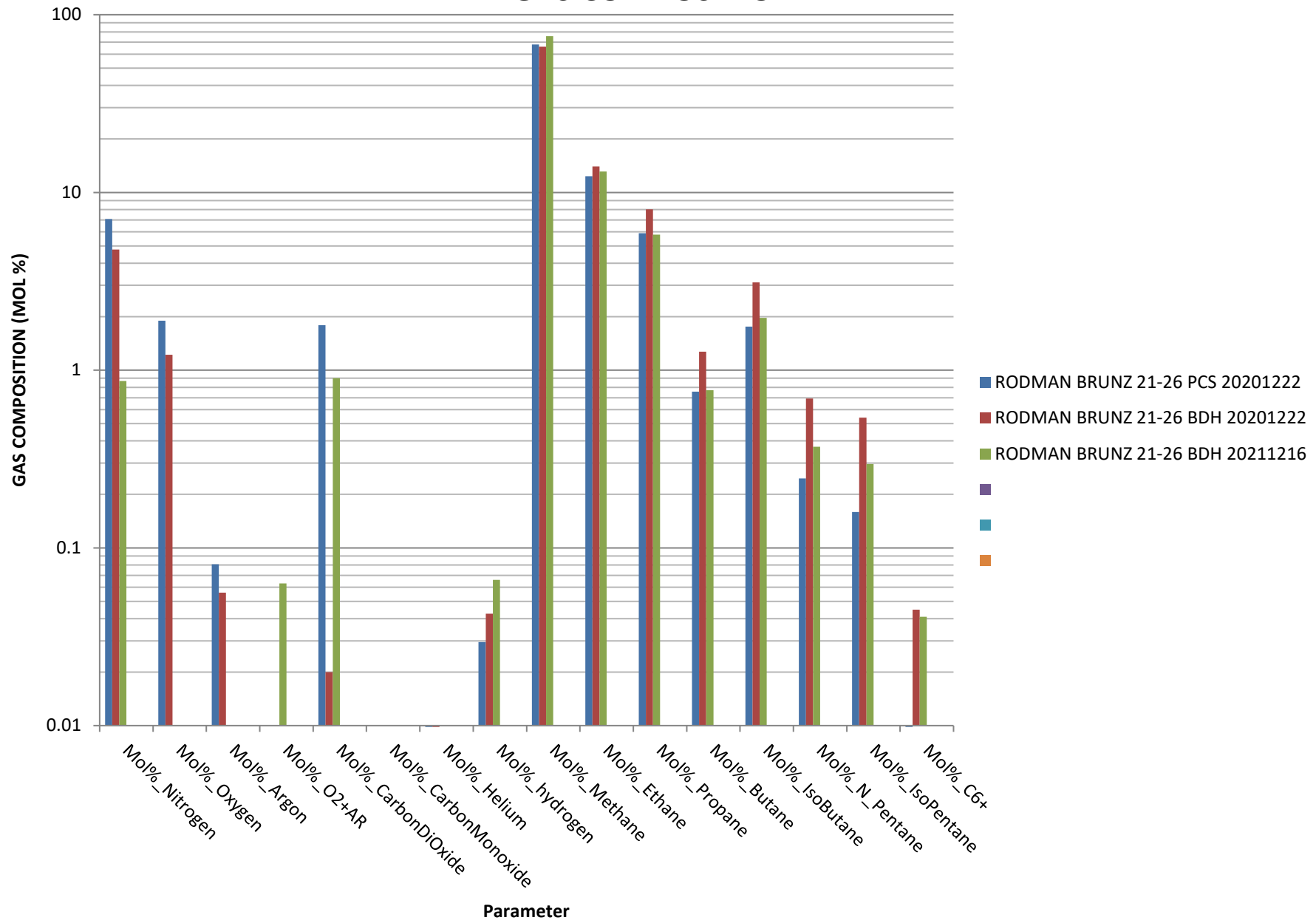
## Methane $\delta^{13}\text{C}$ vs $\delta\text{D}$ Genetic Classification Plot



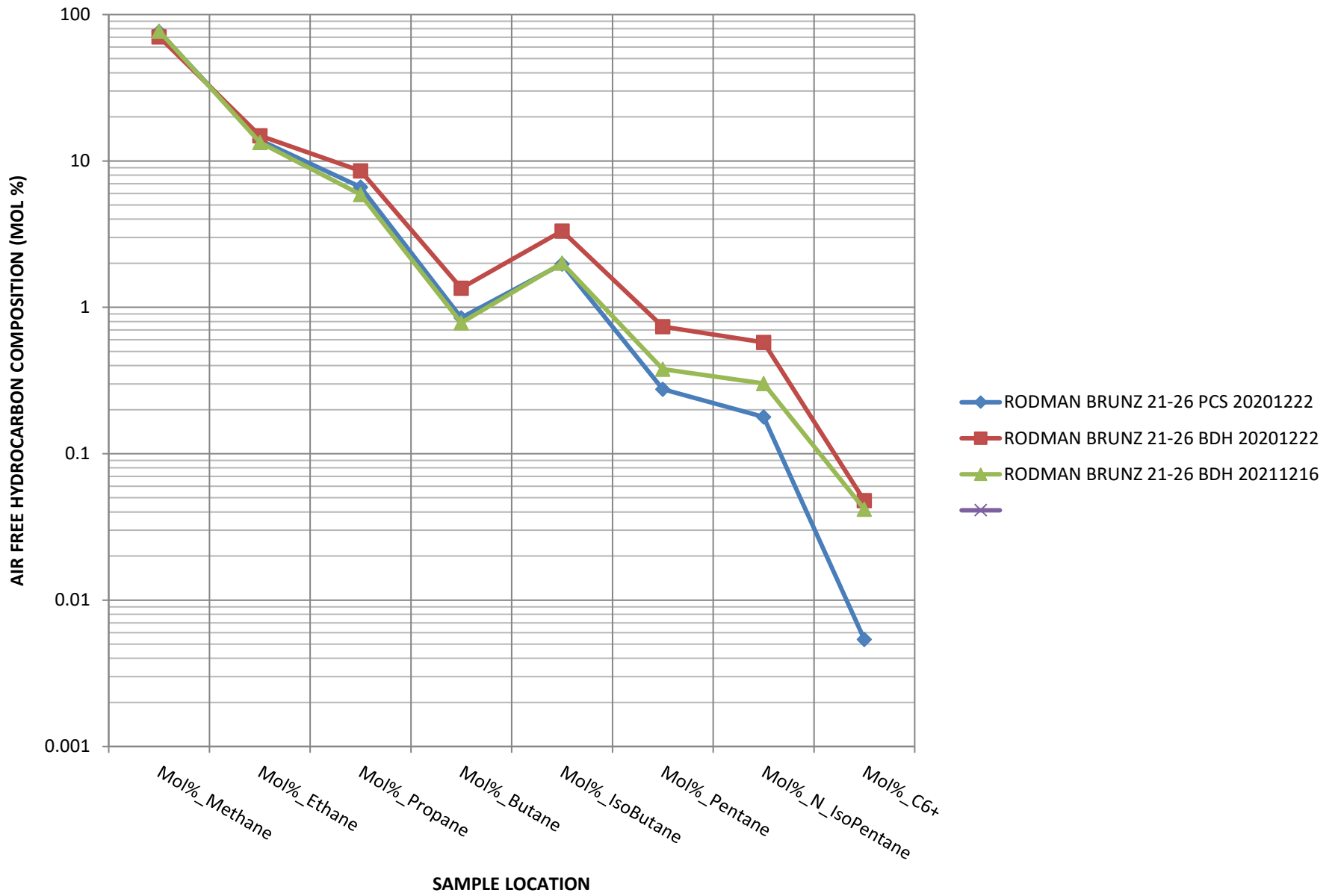
## Methane $\delta^{13}\text{C}$ vs $\text{C}_1/(\text{C}_2+\text{C}_3)$ Genetic Classification Plot

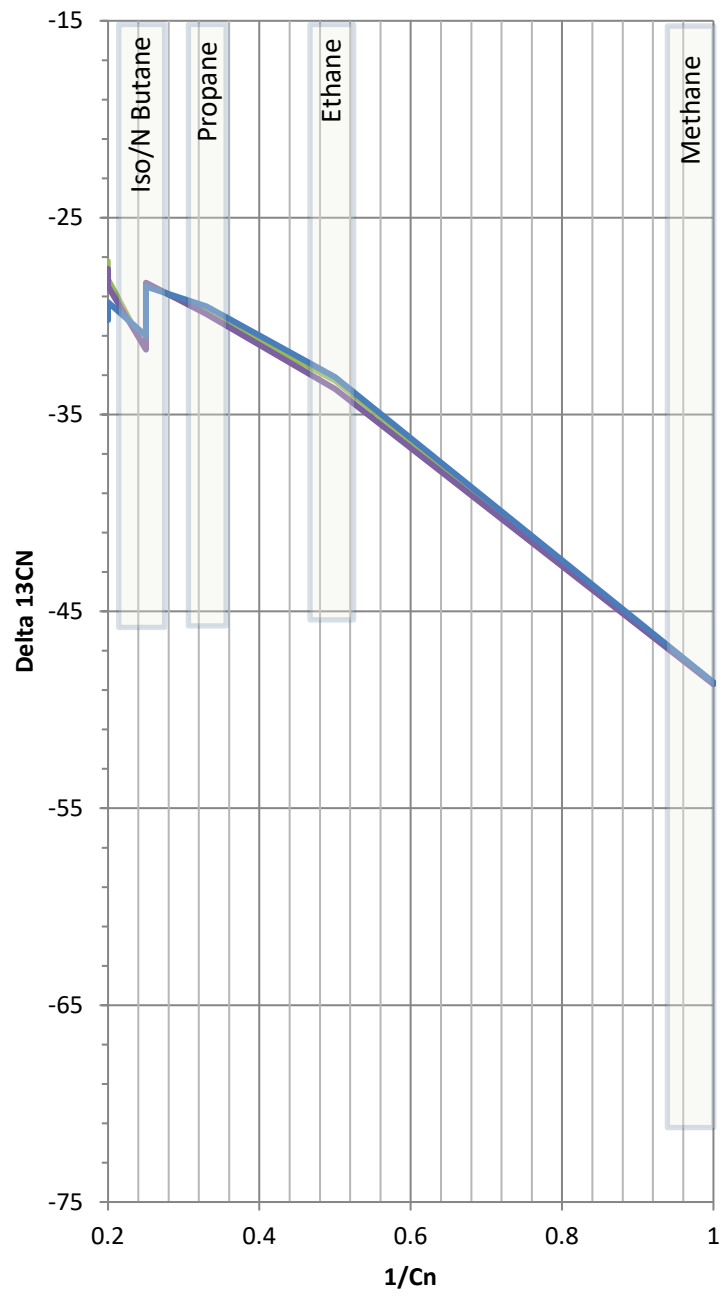


# GAS COMPOSITION



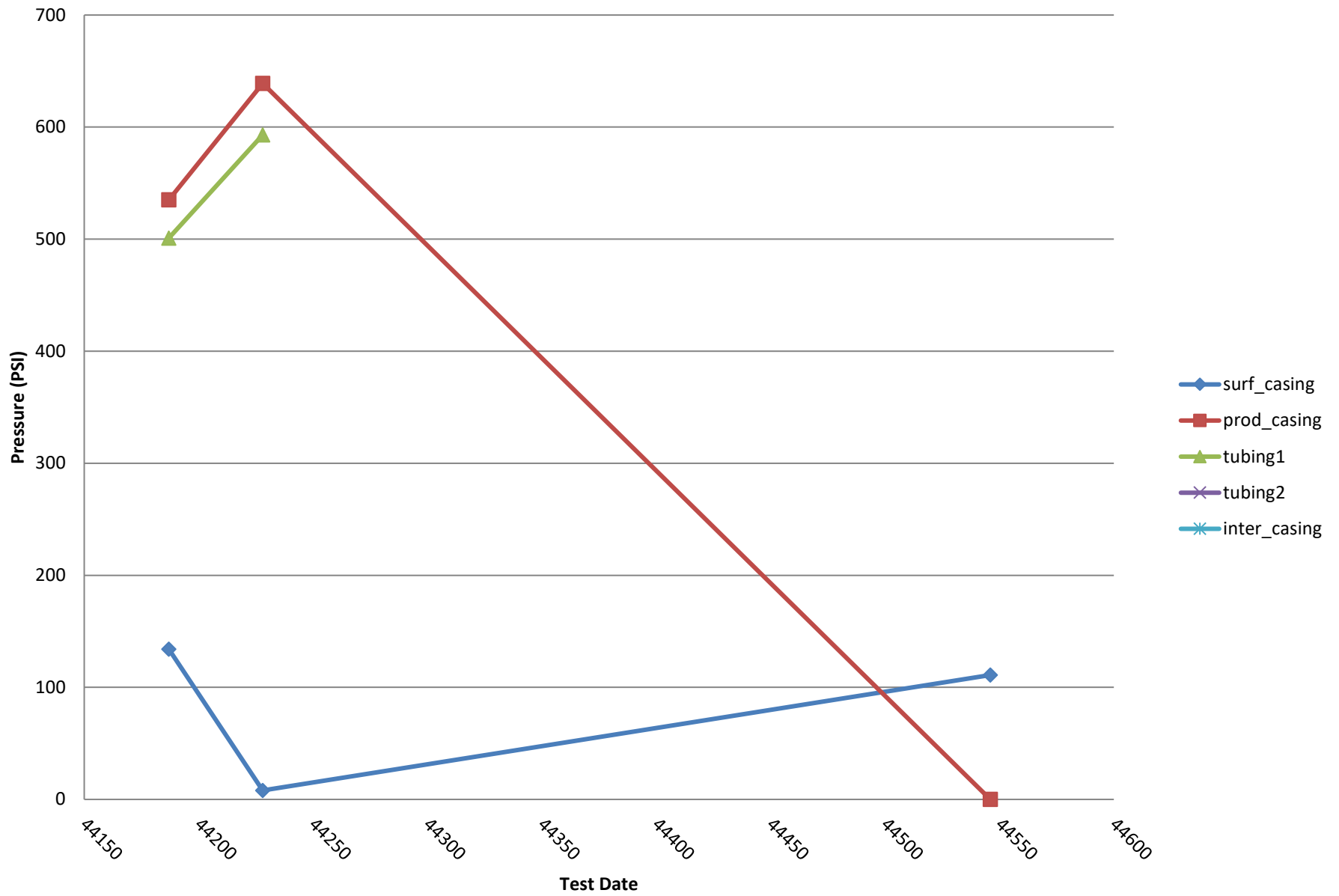
# HYDROCARBON COMPOSITION



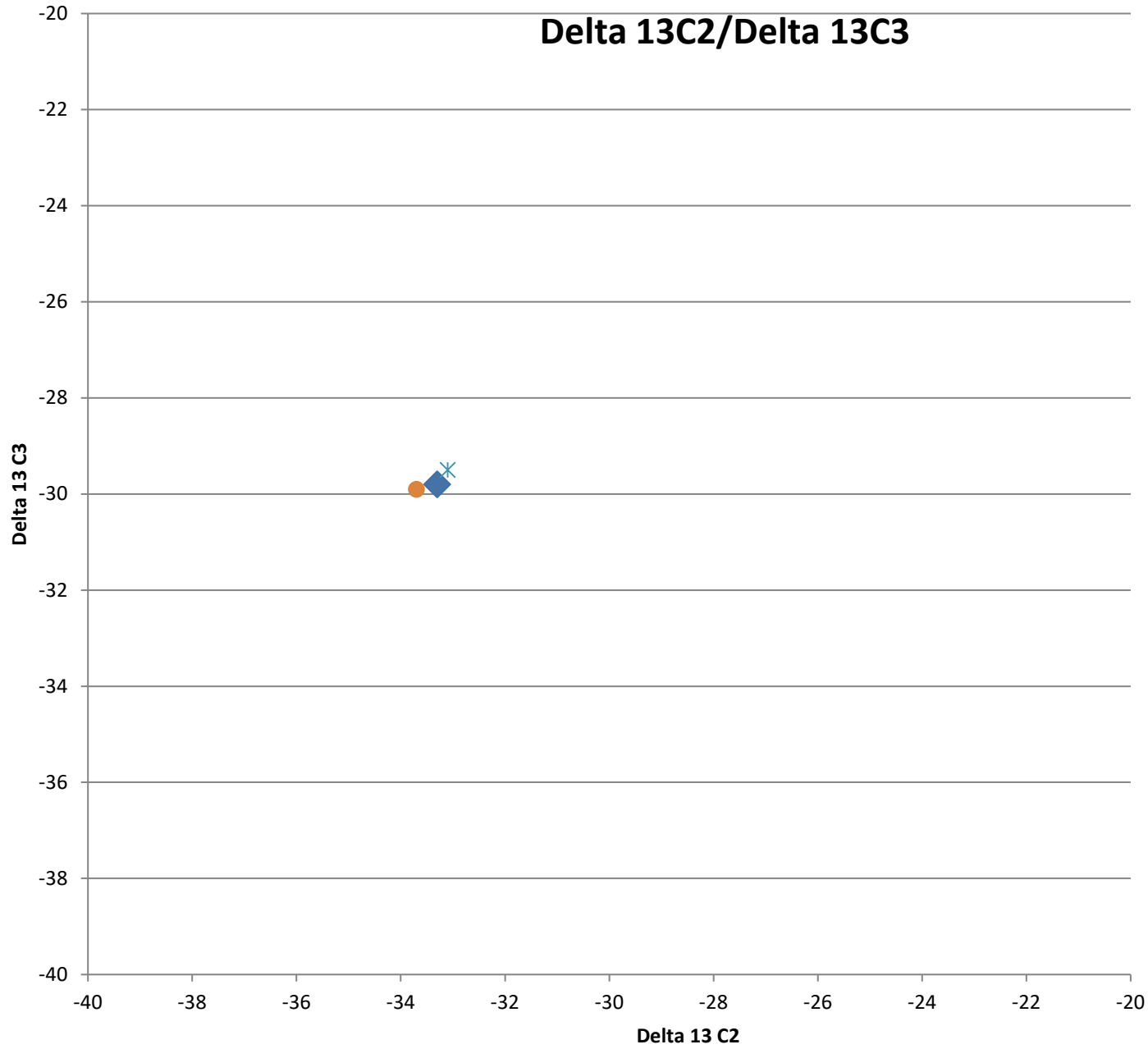


- RODMAN BRUNZ 21-26 PCS
- RODMAN BRUNZ 21-26 BDH
- RODMAN BRUNZ 21-26 BDH
-

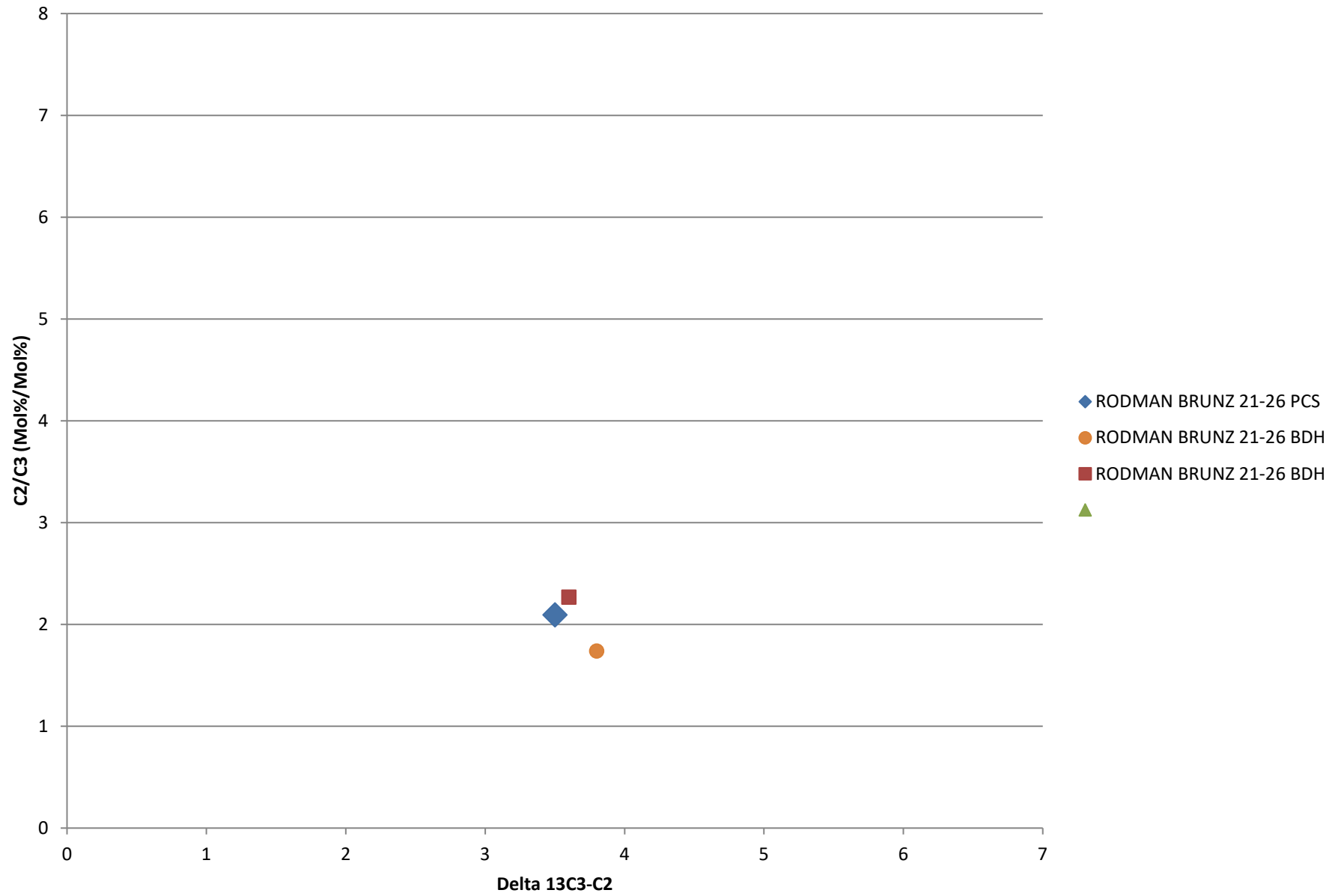
# Bradenhead Test Summary



# Delta 13C2/Delta 13C3



# Delta13 C2/C3 vs. Delta 13C3-C2



# Delta 13 IC4/ Delta NC4

