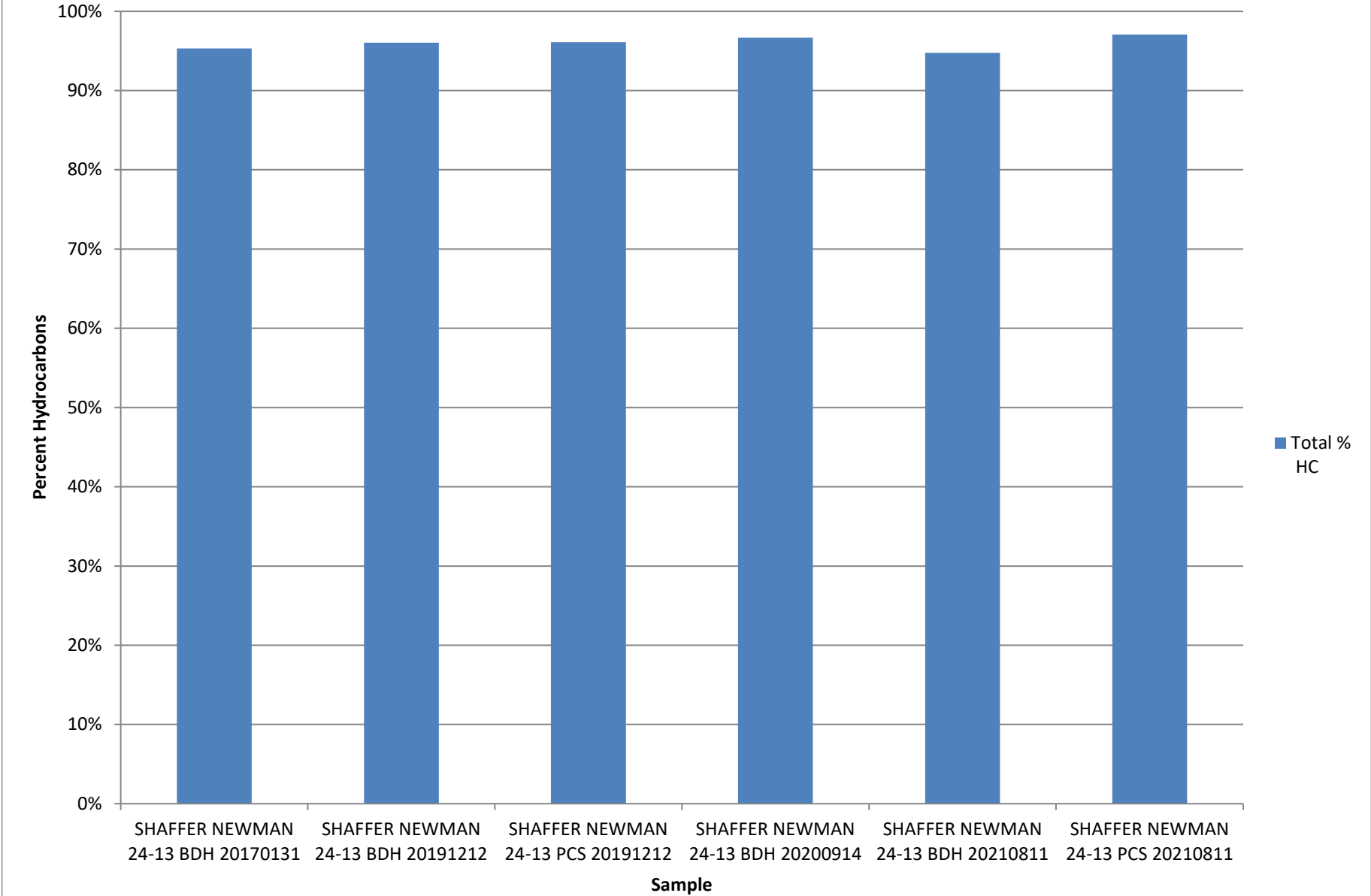
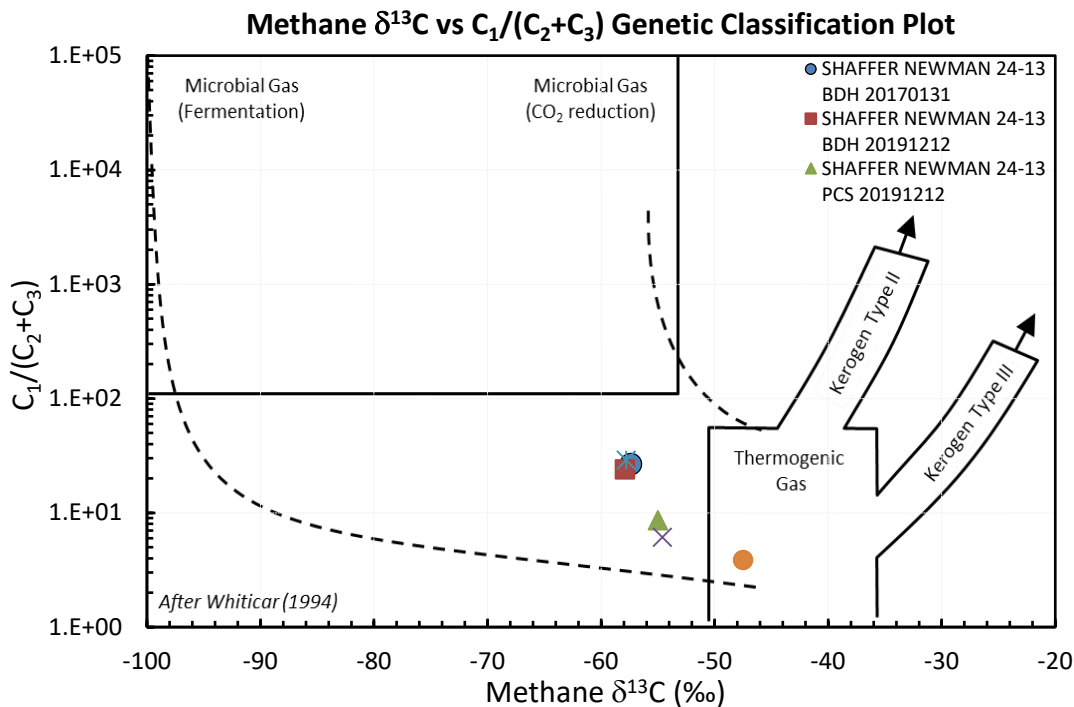
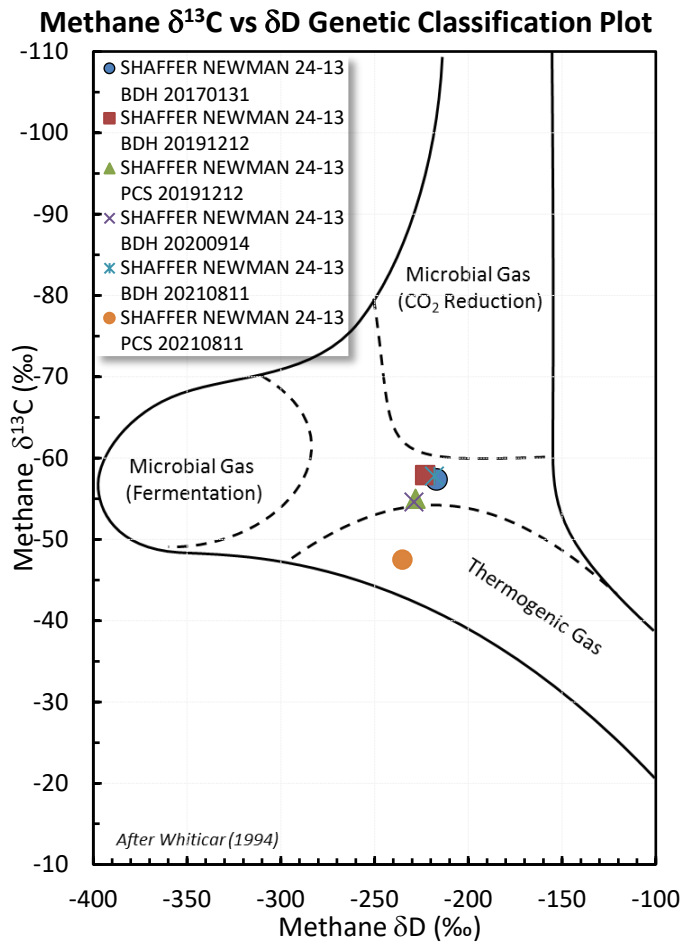
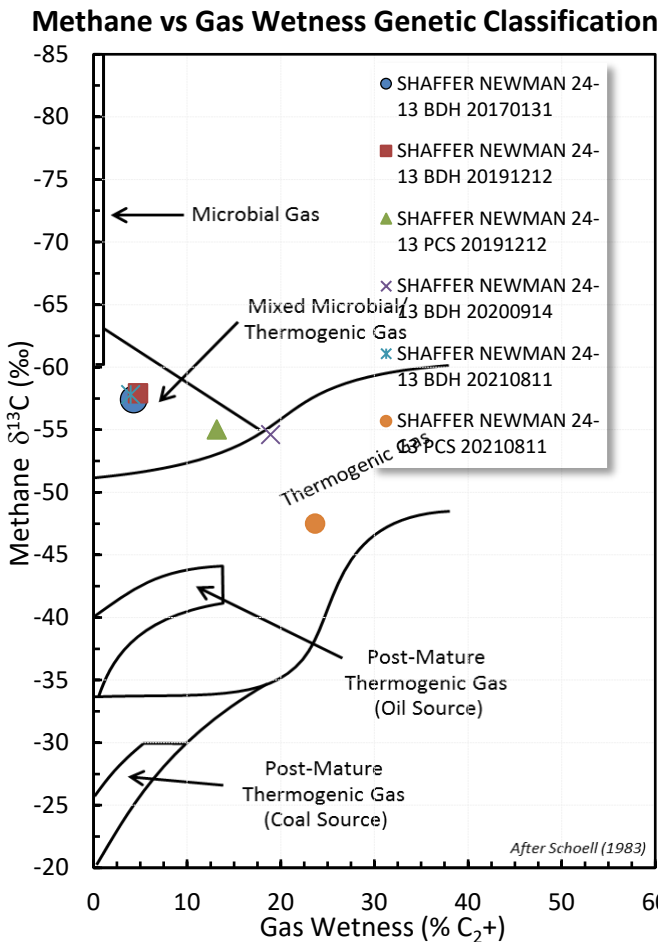


Total Percent Hydrocarbons



Stable Isotope Interpretive Plots



GAS COMPOSITION

GAS COMPOSITION (MOL %)

Parameter

Legend:

- SHAFFER NEWMAN 24-13 BDH 20170131
- SHAFFER NEWMAN 24-13 BDH 20191212
- SHAFFER NEWMAN 24-13 PCS 20191212
- SHAFFER NEWMAN 24-13 BDH 20200914
- SHAFFER NEWMAN 24-13 BDH 20210811
- SHAFFER NEWMAN 24-13 PCS 20210811

Parameter	SHAFFER NEWMAN 24-13 BDH 20170131	SHAFFER NEWMAN 24-13 BDH 20191212	SHAFFER NEWMAN 24-13 PCS 20191212	SHAFFER NEWMAN 24-13 BDH 20200914	SHAFFER NEWMAN 24-13 BDH 20210811	SHAFFER NEWMAN 24-13 PCS 20210811
Mol%_Nitrogen	4.5	3.5	2.5	2.0	4.5	0.7
Mol%_Oxygen	0.12	0.12	0.2	0.15	0.45	0.25
Mol%_Argon	0.02	0.02	0.015	0.015	0.035	0.01
Mol%_O2+AR	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_CarbonDioxide	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_CarbonMonoxide	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_Helium	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_hydrogen	95	95	80	80	95	70
Mol%_Methane	2.5	2.5	6.0	8.0	2.5	12
Mol%_Ethane	1.1	1.2	3.0	4.5	1.0	6.0
Mol%_Propane	0.25	0.3	0.6	0.9	0.25	0.9
Mol%_Butane	0.25	0.25	1.2	2.0	0.2	1.8
Mol%_IsoButane	0.07	0.08	0.4	0.8	0.06	0.45
Mol%_N_Pentane	0.05	0.05	0.4	1.0	0.035	0.45
Mol%_IsoPentane	0.05	0.045	0.2	0.4	0.025	0.07

GAS COMPOSITION

GAS COMPOSITION (MOL %)

Parameter

Legend:

- SHAFFER NEWMAN 24-13 BDH 20170131
- SHAFFER NEWMAN 24-13 BDH 20191212
- SHAFFER NEWMAN 24-13 PCS 20191212
- SHAFFER NEWMAN 24-13 BDH 20200914
- SHAFFER NEWMAN 24-13 BDH 20210811
- SHAFFER NEWMAN 24-13 PCS 20210811

Parameter	SHAFFER NEWMAN 24-13 BDH 20170131	SHAFFER NEWMAN 24-13 BDH 20191212	SHAFFER NEWMAN 24-13 PCS 20191212	SHAFFER NEWMAN 24-13 BDH 20200914	SHAFFER NEWMAN 24-13 BDH 20210811	SHAFFER NEWMAN 24-13 PCS 20210811
Mol%_Nitrogen	4.5	3.5	2.5	2.0	4.5	0.7
Mol%_Oxygen	0.12	0.12	0.2	0.15	0.45	0.25
Mol%_Argon	0.02	0.02	0.015	0.015	0.035	0.01
Mol%_O2+AR	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_CarbonDioxide	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_CarbonMonoxide	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_Helium	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Mol%_hydrogen	95	95	80	80	95	70
Mol%_Methane	2.5	2.5	6.0	8.0	2.5	12
Mol%_Ethane	1.1	1.2	3.0	4.5	1.0	6.0
Mol%_Propane	0.25	0.3	0.6	0.9	0.25	0.9
Mol%_Butane	0.25	0.25	1.2	2.2	0.2	2.0
Mol%_IsoButane	0.07	0.08	0.4	0.8	0.06	0.45
Mol%_N_Pentane	0.05	0.05	0.4	1.0	0.035	0.45
Mol%_IsoPentane	0.05	0.045	0.2	0.4	0.025	0.07

GAS COMPOSITION

GAS COMPOSITION (MOL %)

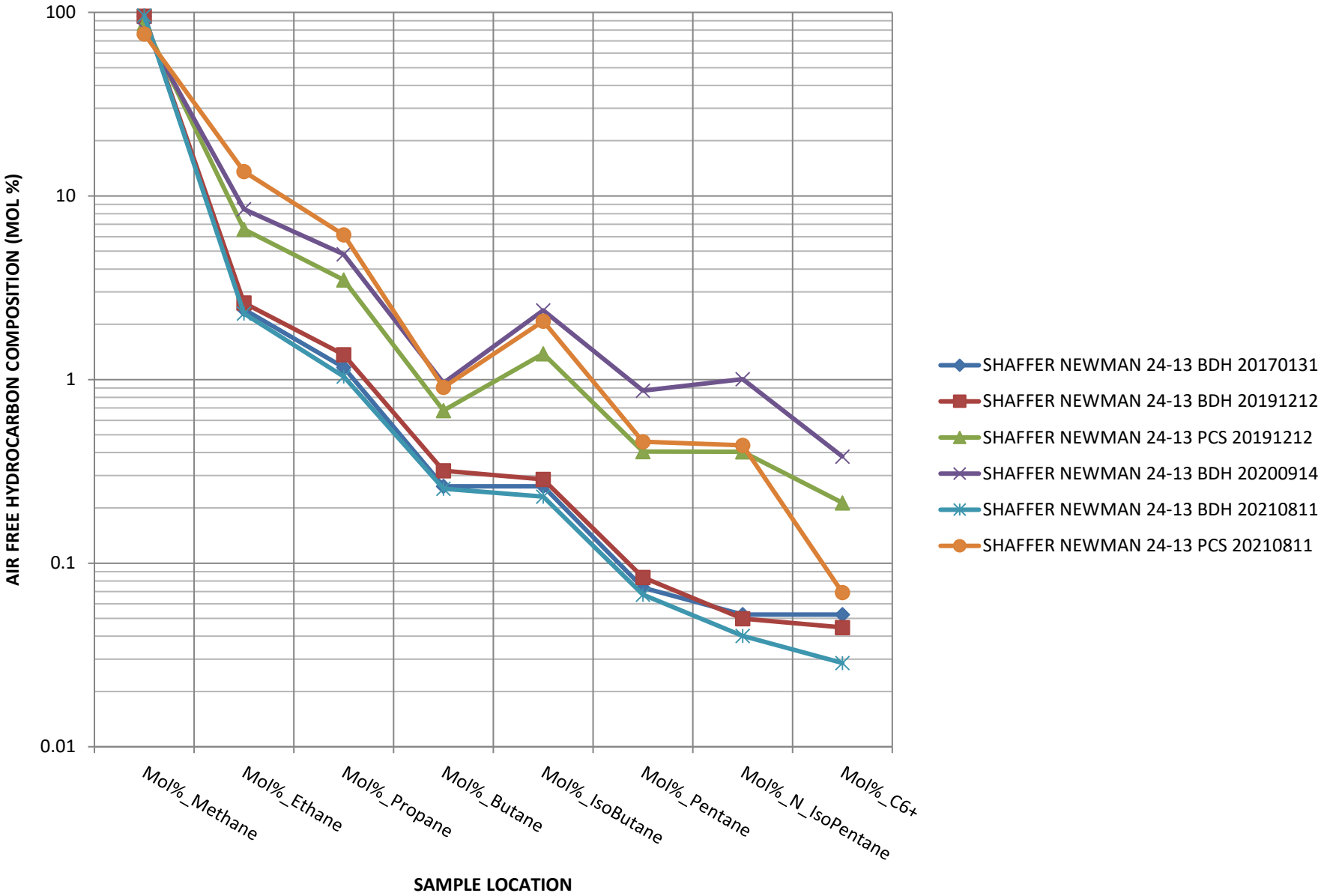
Parameter

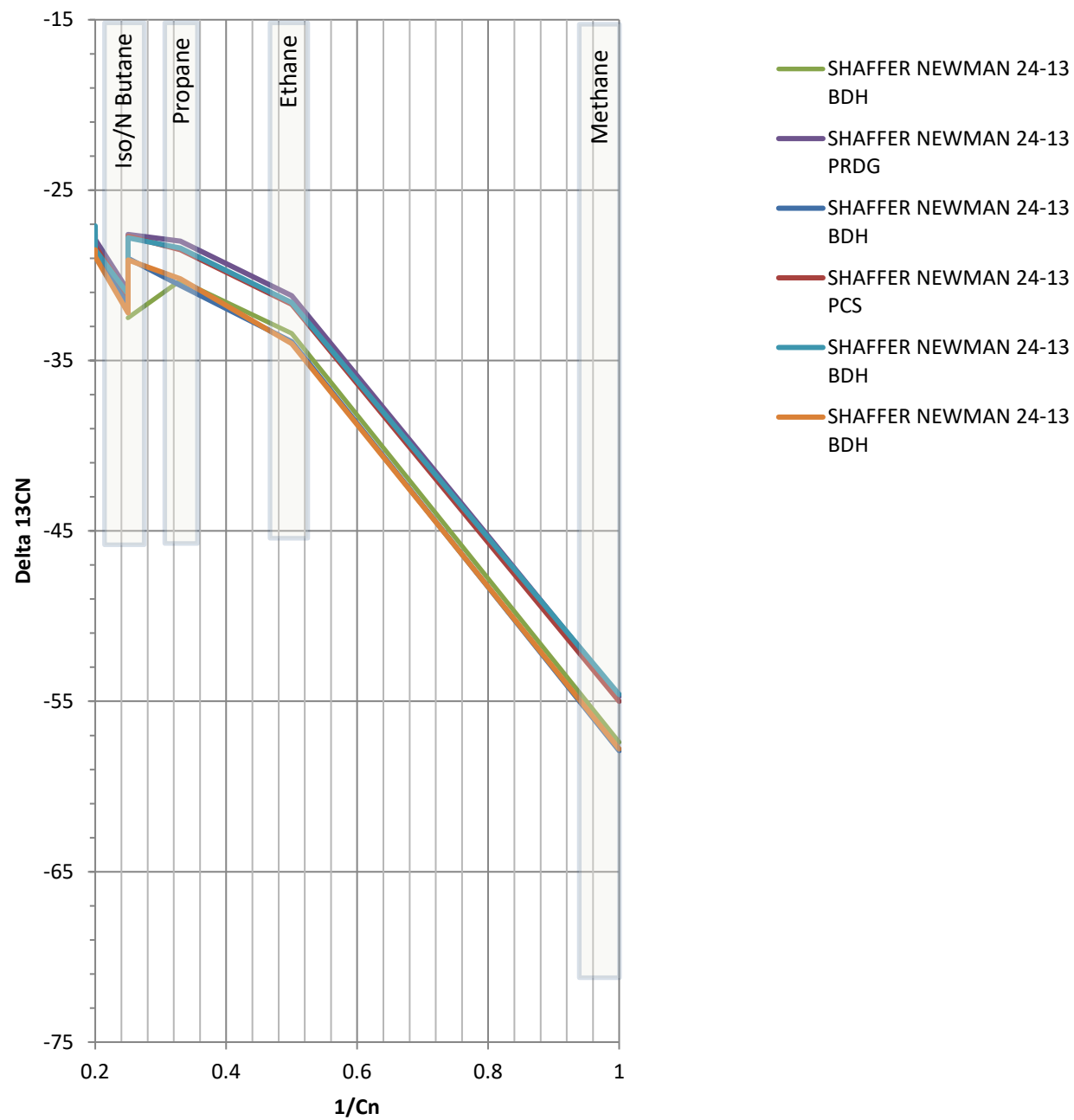
Legend:

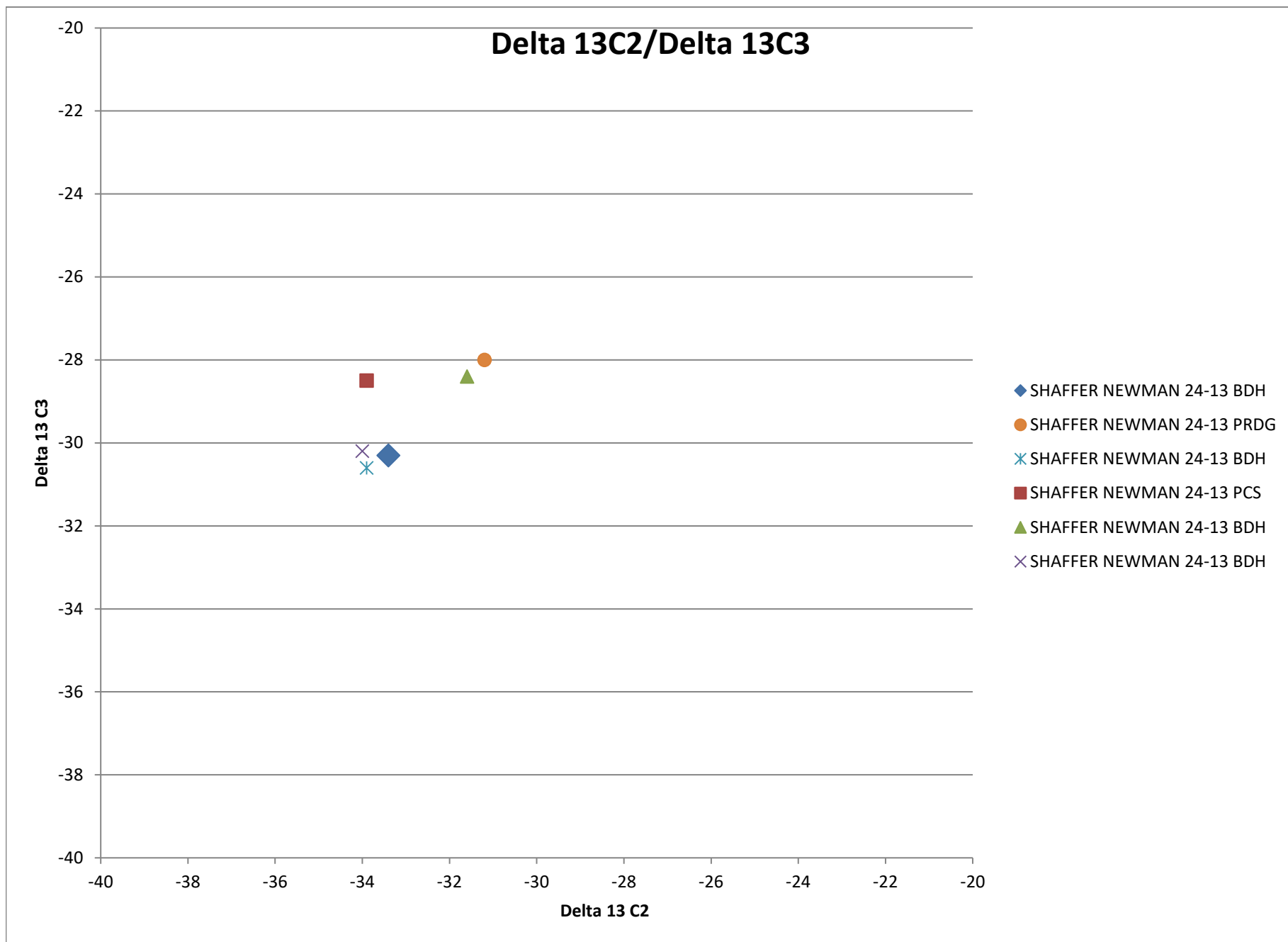
- SHAFFER NEWMAN 24-13 BDH 20170131
- SHAFFER NEWMAN 24-13 BDH 20191212
- SHAFFER NEWMAN 24-13 PCS 20191212
- SHAFFER NEWMAN 24-13 BDH 20200914
- SHAFFER NEWMAN 24-13 BDH 20210811
- SHAFFER NEWMAN 24-13 PCS 20210811

Parameter	SHAFFER NEWMAN 24-13 BDH 20170131	SHAFFER NEWMAN 24-13 BDH 20191212	SHAFFER NEWMAN 24-13 PCS 20191212	SHAFFER NEWMAN 24-13 BDH 20200914	SHAFFER NEWMAN 24-13 BDH 20210811	SHAFFER NEWMAN 24-13 PCS 20210811
Mol% Nitrogen	4.5	3.5	2.5	2.0	4.5	0.7
Mol% Oxygen	0.12	0.12	0.2	0.15	0.45	0.25
Mol% Argon	0.15					
Mol% O2+AR			0.5	1.0	0.012	1.8
Mol% CarbonDioxide	0.08	0.08			0.08	
Mol% CarbonMonoxide			0.05	0.04		
Mol% Helium			0.2			0.05
Mol% hydrogen	95	95	80	80	95	70
Mol% Methane	2.5	2.5	6.0	8.0	2.2	13
Mol% Ethane	1.1	1.2	3.5	4.5	1.0	6.0
Mol% Propane	0.25	0.3	0.6	0.9	0.25	0.9
Mol% Butane	0.25	0.28	1.3	2.2	0.22	1.8
Mol% IsoButane	0.07	0.08	0.4	0.8	0.06	0.45
Mol% N_Pentane	0.05	0.05	0.4	1.0	0.035	0.45
Mol% IsoPentane	0.05	0.045	0.2	0.4	0.025	0.07

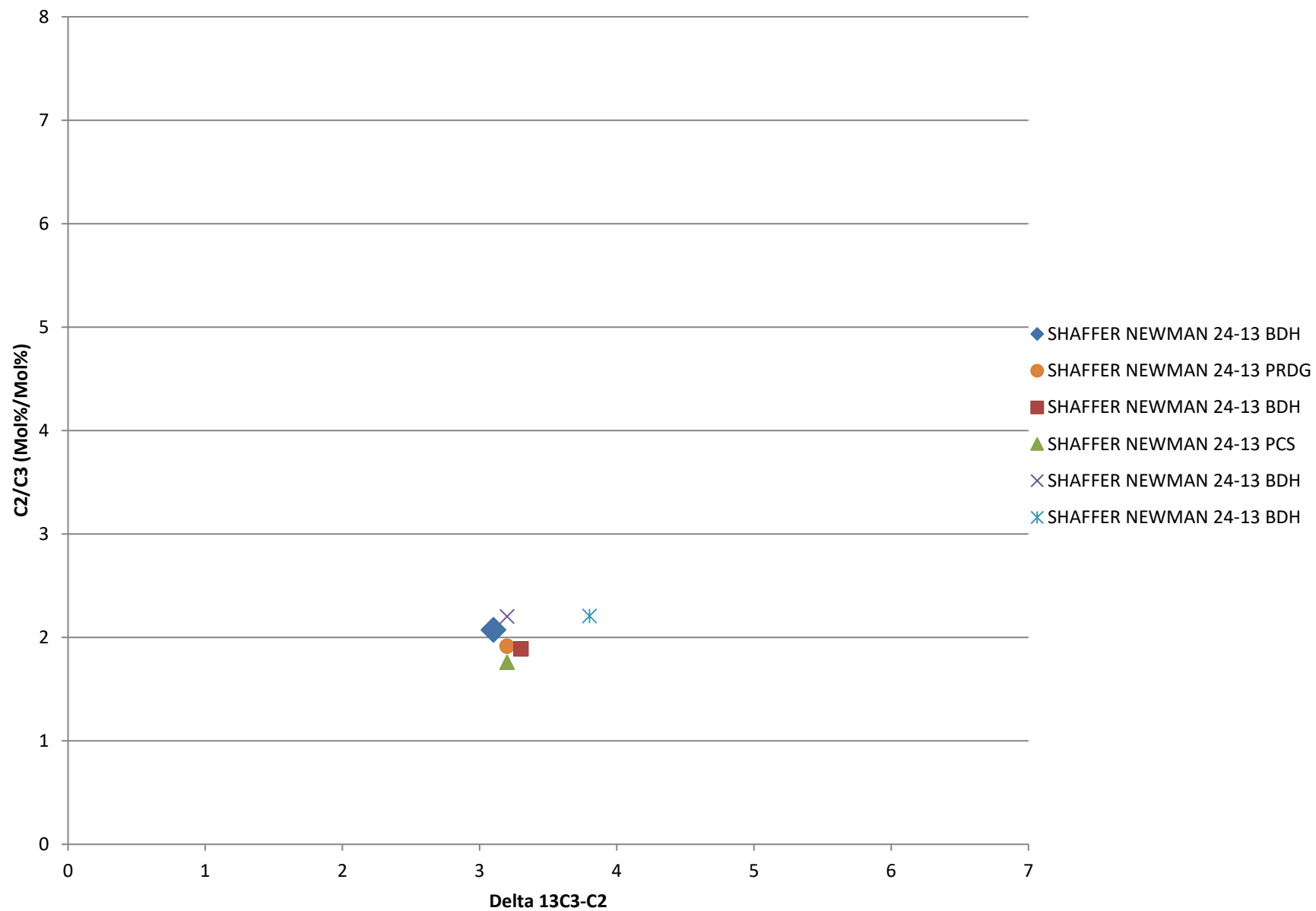
HYDROCARBON COMPOSITION







Delta13 C2/C3 vs. Delta 13C3-C2



Delta 13 IC4/ Delta NC4

