

Lab #: 745399 Job #: 43696 IS-94649 Co. Job#:   
 Sample Name: Pratt 21-29 / Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location: W69768   
 Formation:   
 Sampling Point: 420033   
 Date Sampled: 11/21/2019 12:25 Date Received: 12/13/2019 Date Reported: 1/16/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0100			
Hydrogen -----	nd			
Argon -----	0.0209			
Oxygen -----	0.45			
Nitrogen -----	2.01			
Carbon Dioxide -----	1.71	2.6		
Methane -----	78.17	-47.5	-242	
Ethane -----	12.13	-32.0		
Ethylene -----	0.0002			
Propane -----	4.20	-28.5		
Propylene -----	nd			
Iso-butane -----	0.425	-30.9		
N-butane -----	0.740	-27.5		
Iso-pentane -----	0.0601	-27.7		
N-pentane -----	0.0364	-27.1		
Hexanes + -----	0.0384			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1159

Specific gravity, calculated: 0.701

Remarks: isotopes obtained online via GC-C-IRMS/GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 745400 Job #: 43696 IS-94649 Co. Job#:   
 Sample Name: Pratt 21-29 / Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location: W69768   
 Formation:   
 Sampling Point: 420033   
 Date Sampled: 11/21/2019 12:22 Date Received: 12/13/2019 Date Reported: 1/16/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0293			
Hydrogen -----	nd			
Argon -----	0.0140			
Oxygen -----	0.21			
Nitrogen -----	1.73			
Carbon Dioxide -----	0.008			
Methane -----	83.64	-51.1	-245	
Ethane -----	8.76	-34.4		
Ethylene -----	nd			
Propane -----	3.79	-29.9		
Propylene -----	nd			
Iso-butane -----	0.426	-31.6		
N-butane -----	0.860	-28.6		
Iso-pentane -----	0.194	-28.5		
N-pentane -----	0.180	-28.6		
Hexanes + -----	0.160			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1165

Specific gravity, calculated: 0.671

Remarks: Insufficient CO2 concentration for isotopic analysis. isotopes obtained online via GC-C-IRMS/GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.