

Lab #: 755468 Job #: 44326 IS-94649 Co. Job#:
 Sample Name: Mantle 4-2-28 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location:
 Formation:
 Sampling Point: 288067
 Date Sampled: 2/06/2020 10:25 Date Received: 2/21/2020 Date Reported: 3/12/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.169			
Oxygen -----	3.96			
Nitrogen -----	14.53			
Carbon Dioxide -----	1.92	1.2		
Methane -----	62.68	-44.5	-219	
Ethane -----	9.01	-28.3		
Ethylene -----	nd			
Propane -----	3.57	-25.3		
Propylene -----	nd			
Iso-butane -----	1.06	-29.5		
N-butane -----	1.86	-25.3		
Iso-pentane -----	0.554	-27.3		
N-pentane -----	0.501	-25.1		
Hexanes + -----	0.188			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1034

Specific gravity, calculated: 0.801

Remarks: Isotopes obtained online via GC-C-IRMS and GC-P-IRMS
W33505

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 #: 755469 Job #: 44326 IS-94649 Co. Job#:
 Sample Name: Mantle 4-2-28 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location:
 Formation:
 Sampling Point: 288067
 Date Sampled: 2/06/2020 Date Received: 2/21/2020 Date Reported: 3/12/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.0107			
Oxygen -----	0.24			
Nitrogen -----	0.97			
Carbon Dioxide -----	2.64	4.0		
Methane -----	79.66	-44.8	-221	
Ethane -----	11.35	-28.5		
Ethylene -----	nd			
Propane -----	3.50	-25.5		
Propylene -----	0.0002			
Iso-butane -----	0.477	-29.8		
N-butane -----	0.768	-25.6		
Iso-pentane -----	0.168	-27.4		
N-pentane -----	0.136	-25.2		
Hexanes + -----	0.0758			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1156

Specific gravity, calculated: 0.700

Remarks: Isotopes obtained online via GC-C-IRMS and GC-P-IRMS
W33505

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 #: 755470 Job #: 44326 IS-94649 Co. Job#:
 Sample Name: Mantle 4-2-28 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location:
 Formation:
 Sampling Point: 288067
 Date Sampled: 2/06/2020 9:50 Date Received: 2/21/2020 Date Reported: 3/12/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0054			
Hydrogen -----	0.0111			
Argon -----	nd			
Oxygen -----	0.079			
Nitrogen -----	0.41			
Carbon Dioxide -----	1.78	0.3		
Methane -----	82.31	-45.4	-224	
Ethane -----	10.93	-29.4		
Ethylene -----	nd			
Propane -----	3.16	-26.3		
Propylene -----	0.0003			
Iso-butane -----	0.374	-29.9		
N-butane -----	0.678	-26.0		
Iso-pentane -----	0.130	-27.7		
N-pentane -----	0.0884	-25.7		
Hexanes + -----	0.0409			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1155

Specific gravity, calculated: 0.677

Remarks: Isotopes obtained online via GC-C-IRMS and GC-P-IRMSv
W33505

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. %.