

Lab #: 746668 Job #: 43749 IS-94649 Co. Job#:
 Sample Name: Ione 6-8-2 / Production Casing Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W66945
 Formation:
 Sampling Point: 416453
 Date Sampled: 12/10/2019 11:43 Date Received: 12/16/2019 Date Reported: 1/23/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0075			
Hydrogen -----	0.109			
Argon -----	0.0114			
Oxygen -----	0.24			
Nitrogen -----	1.00			
Carbon Dioxide -----	2.35	2.9		
Methane -----	71.78	-47.6	-243	
Ethane -----	13.80	-32.0		
Ethylene -----	nd			
Propane -----	6.46	-28.2		
Propylene -----	nd			
Iso-butane -----	0.993	-31.1		
N-butane -----	2.26	-27.8		
Iso-pentane -----	0.503	-28.1		
N-pentane -----	0.442	-26.8		
Hexanes + -----	0.0476			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1286

Specific gravity, calculated: 0.778

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 #: 746669 Job #: 43749 IS-94649 Co. Job#:
 Sample Name: Ione 6-8-2 / Surface Casing Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W66945
 Formation:
 Sampling Point: 416453
 Date Sampled: 12/10/2019 11:38 Date Received: 12/16/2019 Date Reported: 1/23/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0155			
Hydrogen -----	0.0425			
Argon -----	0.0132			
Oxygen -----	0.21			
Nitrogen -----	1.30			
Carbon Dioxide -----	0.006			
Methane -----	79.15	-49.1	-245	
Ethane -----	11.13	-33.7		
Ethylene -----	nd			
Propane -----	5.44	-29.1		
Propylene -----	nd			
Iso-butane -----	0.747	-31.2		
N-butane -----	1.36	-27.9		
Iso-pentane -----	0.310	-28.6		
N-pentane -----	0.208	-28.2		
Hexanes + -----	0.0654			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1232

Specific gravity, calculated: 0.709

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. %.