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ISOTECH LABORATORIES INC
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Isotech Gas Data

Job 17407

Isotech Lab No.	Sample Name	Sample Date	Sample Time	Field Name	GC Date	He %	H_2 %	Ar %	O_2 %	CO_2 %	N_2 %	CO %
235488	HW02z	1/25/2012	12:59	A3TA	2/9/2012	0.0112	nd	0.628	0.80	0.094	40.72	nd
235489	HW04	1/24/2012	14:33	A3TA	2/9/2012	na	nd	1.50	2.28	2.01	84.37	nd
235490	HW05	1/26/2012	11:35	A3TA	2/9/2012	na	nd	1.54	4.82	0.40	84.97	nd
235491	HW06	1/26/2012	15:30	A3TA	2/9/2012	0.0248	0.0222	0.503	1.04	0.008	32.03	nd
235492	HW08a	1/25/2012	11:46	A3TA	2/9/2012	na	nd	0.746	5.31	3.22	36.31	nd
235493	HW12	1/26/2012	13:23	A3TA	2/9/2012	0.0434	nd	0.115	0.16	0.073	4.54	nd
235494	HW17	1/27/2012	11:40	A3TA	2/9/2012	na	nd	1.49	2.06	0.43	80.93	nd
235495	HW24	1/27/2012	12:09	A3TA	2/9/2012	na	nd	1.58	1.29	0.017	94.00	nd
235496	HW02	1/25/2012	12:58	A3TA	2/9/2012	0.0110	nd	0.636	1.12	0.10	41.09	nd
235497	HW01	1/25/2012	16:31	A3TA	2/9/2012	0.0747	nd	0.683	0.20	0.005	49.91	nd
235498	HW14	1/26/2012	17:13	A3TA	2/9/2012	na	nd	1.46	2.70	4.99	72.02	nd
235499	HW19	1/23/2012	15:47	A3TA	2/9/2012	na	nd	1.63	7.11	4.38	86.88	nd

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace.

	A	B	C	D	E	F	G	H	I	J	K	L	M
27	Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.												
28													
29	nd = not detected, na = not analyzed												
30	** *Isotopes obtained online via GC-C-IRMS*												
31	*** Methane and ethane concentrations insufficient for isotope analyses												

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11	C_1	C_2	C_2H_4	C_3	C_3H_6	iC_4	nC_4	iC_5	nC_5	C_6+	MS	$\delta^{13}C_1$	δDC_1	$\delta^{13}C_2$
12	%	%	%	%	%	%	%	%	%	%	Date	‰	‰	‰
13	57.06	0.687	nd	nd	0.0001	nd	nd	nd	nd	nd	4/25/2012	-29.30	-160.6	-28.6
14	9.76	0.0796	nd	0.0004	nd	nd	nd	nd	nd	nd	4/25/2012	-24.98	-121.8	-31.2
15	8.24	0.0259	nd	nd	nd	nd	nd	nd	nd	nd	2/13/2012	-33.0	-162.9	***
16	65.62	0.746	nd	0.0068	0.0001	nd	nd	nd	nd	nd	4/18/2012	-31.07	-169.0	-34.43
17	53.64	0.767	nd	0.0030	nd	nd	nd	nd	nd	nd	4/25/2012	-36.58	-209.9	-35.9
18	94.06	0.987	nd	0.0221	0.0002	0.0006	0.0012	nd	nd	nd	4/18/2012	-35.90	-196.7	-35.33
19	14.97	0.118	nd	0.0011	nd	nd	nd	nd	nd	nd	4/25/2012	-31.54	-167.8	-32.9
20	3.11	nd	nd	nd	nd	nd	nd	nd	nd	nd	2/13/2012	-53.8	-165	***
21	56.36	0.683	nd	nd	0.0001	nd	nd	nd	nd	nd	4/24/2012	-29.36	-160.5	-28.83
22	48.69	0.432	nd	0.0004	0.0001	nd	nd	nd	nd	nd	4/24/2012	-36.80	-202.4	-31.58
23	18.74	0.0899	nd	nd	nd	nd	nd	nd	nd	nd	4/25/2012	-26.58	-140.3	-26.6
24	0.0011	nd	nd	nd	nd	nd	nd	nd	nd	nd	2/7/2012	***	***	***
25														
26														

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
27														
28														
29														
30														
31														

	AB	AC	AD	AE	AF	AG	AH
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10							
11	δDC_2	$\delta D\ H_2O$	$\delta^{18}O\ H_2O$	Specific	BTU	Helium dilution	Comments
12	‰	‰	‰	Gravity		factor *	
13	-166	-64.6	-9.66	0.736	590		
14	-187	-63.2	-9.48	0.947	100	0.74	
15	***	-63.2	-9.36	0.948	84	0.68	
16	-195.0	-65.6	-9.85	0.700	678		
17	-189	-61.0	-9.20	0.774	557	0.67	
18	-204.0	-64.6	-9.60	0.580	972		
19	-169	-64.9	-9.63	0.917	154	0.72	
20	***	-64.8	-9.70	0.963	31	0.65	
21	-169	-64.5	-9.76	0.739	583		
22	-177	-65.1	-9.81	0.769	501		
23	-157	-63.2	-9.54	0.927	191	0.74	
24	***	-61.1	-9.13	1.008	0	0.73	
25							
26							

	AB	AC	AD	AE	AF	AG	AH
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235494	HW17	1/27/2012	11:40	A3TA	2/9/2012	na	nd	1.49	2.06	0.43	80.93	nd
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11	C_1	C_2	C_2H_4	C_3	C_3H_6	iC_4	nC_4	iC_5	nC_5	C_6+	MS	$\delta^{13}C_1$	δDC_1	$\delta D\ H_2O$
12	%	%	%	%	%	%	%	%	%	%	Date	‰	‰	‰
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19	14.97	0.118	nd	0.0011	nd	nd	nd	nd	nd	nd	2/11/2012	-31.54	-167.8	-64.9
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21	56.36	0.683	nd	nd	0.0001	nd	nd	nd	nd	nd	2/11/2012	-29.36	-160.5	-64.5
22	48.69	0.432	nd	0.0004	0.0001	nd	nd	nd	nd	nd	2/11/2012	-36.80	-202.4	-65.1
23	18.74	0.0899	nd	nd	nd	nd	nd	nd	nd	nd	2/11/2012	-26.58	-140.3	-63.2
24	0.0011	nd	nd	nd	nd	nd	nd	nd	nd	nd	2/7/2012	*	*	-61.1
25														
26														

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
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29														
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31														

	AB	AC	AD	AE
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17	-9.20	0.774	557	0.67
18	-9.60	0.580	972	
19	-9.63	0.917	154	0.72
20	-9.70	0.963	31	0.65
21	-9.76	0.739	583	
22	-9.81	0.769	501	
23	-9.54	0.927	191	0.74
24	-9.13	1.008	0	0.73
25				
26				

	AB	AC	AD	AE
27				
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