

# Energy Laboratories Inc

# ANALYTICAL RUN Summary

20-Sep-21

Run ID FID-HEADSPACE\_210120A

Run Start Date: 1/20/2021  
 Analyst: Jeff Whitmer  
 Ical:  
 Column ID: porapak Q  
 Comments: thermometer used for temp:S94278.

Instrument ID	Description
1000_SGE_041819	1000 mL SGE Syringe _ Gas Tight

Std ID	Std Name	Std Amount	Std Units	Samp Amount	Samp Units	SampType	Expiration Date
10711	HC-Methane-W-CCV	0.3	ml			lcs	8/9/2022
12173	HC-Methane-W-CCV	0.3	ml			CCV	11/23/2023

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188877	MBLK	HC-METHANE-	MBLK		1/20/2021 11:50:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	mg/L		0			0	0	0.00031	0.001	0	0%	0	0	0%	
Ethene	A	mg/L		0			0	0	0.00023	0.001	0	0%	0	0	0%	
Methane	A	mg/L		0			0	0	0.000704	0.001	0	0%	0	0	0%	
Ethylene	X	mg/L		0			0	0	0.001	0.001	0	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188879	Cal1	HC-METHANE-	CAL1		1/20/2021 11:54:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		2.66692829		2.5	0	0	2	2	0	107%	50	150	0%	
Ethene	A	ppm		2.68217219		2.5	0	0	2	2	0	107%	50	150	0%	
Methane	A	ppm		2.9330938		2.5	0	0	2	2	0	117%	50	150	0%	
Ethylene	X	ppm		2.68217219		1000	0	0	2	2	0	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188881	Cal2	HC-METHANE-	CAL2		1/20/2021 12:00:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

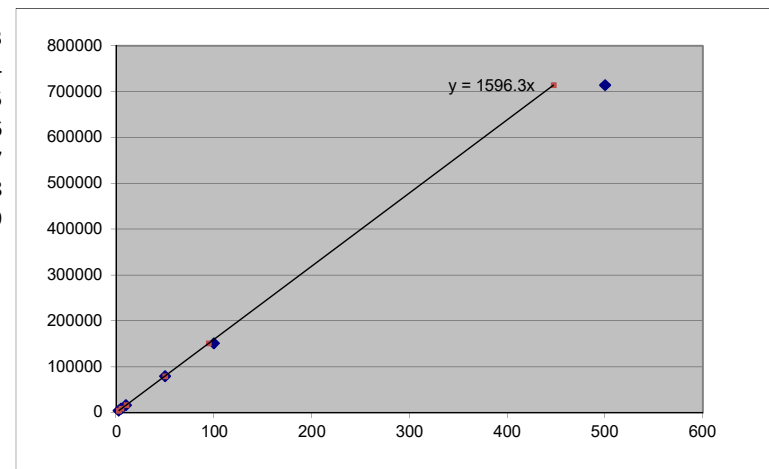
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188881	Cal2	HC-METHANE-	CAL2		1/20/2021 12:00:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		5.15876183		5	0	0	2	2	0	103%	85	115	0%	
Ethene	A	ppm		5.18455183		5	0	0	2	2	0	104%	85	115	0%	
Methane	A	ppm		5.47590194		5	0	0	2	2	0	110%	85	115	0%	
Ethylene	X	ppm		5.18455183		1000	0	0	2	2	0	1%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188883	Cal3	HC-METHANE-	CAL3		1/20/2021 12:04:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		10.3740375		10	0	0	2	2	0	104%	85	115	0%	
Ethene	A	ppm		10.2107455		10	0	0	2	2	0	102%	85	115	0%	
Methane	A	ppm		10.5521213		10	0	0	2	2	0	106%	85	115	0%	
Ethylene	X	ppm		10.2107455		1000	0	0	2	2	0	1%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188885	Cal4	HC-METHANE-	CAL4		1/20/2021 12:09:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		50.4828227		50	0	0	2	2	0	101%	85	115	0%	
Ethene	A	ppm		50.7731613		50	0	0	2	2	0	102%	85	115	0%	
Methane	A	ppm		49.9741048		50	0	0	2	2	0	100%	85	115	0%	
Ethylene	X	ppm		50.7731613		1000	0	0	2	2	0	5%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188887	Cal5	HC-METHANE-	CAL5		1/20/2021 12:14:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		96.640217		100	0	0	2	2	0	97%	85	115	0%	
Ethene	A	ppm		96.3665695		100	0	0	2	2	0	96%	85	115	0%	
Methane	A	ppm		94.8118498		100	0	0	2	2	0	95%	85	115	0%	
Ethylene	X	ppm		96.3665695		1000	0	0	2	2	0	10%	0	0	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188889	Cal6	HC-METHANE-	CAL6		1/20/2021 12:22:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		444.006974		500	0	0	2	2	0	89%	85	115	0%	
Ethene	A	ppm		445.008645		500	0	0	2	2	0	89%	85	115	0%	
Methane	A	ppm		447.326874		500	0	0	2	2	0	89%	85	115	0%	
Ethylene	X	ppm		445.008645		1000	0	0	2	2	0	45%	0	0	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188891	Cal7	HC-METHANE-	CAL7		1/20/2021 12:31:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		834.11562		1000	0	0	2	2	0	83%	85	115	0%	S
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
14188893	LCS	HC-METHANE-	CCV		1/20/2021 12:36:	1	R355741		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Ethane	A	ppm		97.2572953		100	0	0	2	2	0	97%	85	115	0%	
Ethene	A	ppm		97.1407652		100	0	0	2	2	0	97%	85	115	0%	
Methane	A	ppm		96.8898234		100	0	0	2	2	0	97%	85	115	0%	
Ethylene	X	ppm		97.1407652		1000	0	0	2	2	0	10%	85	115	0%	S

Inst ID FID-HeadSpace

Curve Data for samples analyzed after 1/29/2021

Blank,cts	STD ID					
0	#12173	1000000				
Decimal	Sample	Response	Date/Time	Run Id		
Amnt, Injtd	Conc ppm	Area				
Equivalent		Counts				
300ul						
0.0000025	2.5	4682	1872.8	1/21/2021 11:54	16483	
0.000005	5	8741	1748.2	1/21/2021 12:00	16484	
0.00001	10	16844	1684.4	1/21/2021 12:04	16485	
0.00005	50	79772	1595.44	1/21/2021 12:09	16486	
0.0001	100	151345	1513.45	1/21/2021 12:14	16487	
0.0005	500	714053	1428.106	1/21/2021 12:22	16488	
0.001	1000	1331471	1331.471	1/21/2021 12:31	16489	



Methane	MW= 16.04	StdDev	188.2268
		Avg RF	1596.267
		%RSD	11.79169

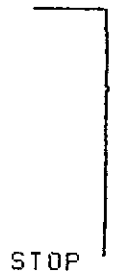
[PPM]	Area Cnts	Calculated Recoveries	
		PPM	% recovery
2.5	4682	2.933094	1.1732375
5	8741	5.475902	1.0951804
10	16844	10.55212	1.0552121
50	79772	49.9741	0.9994821
100	151345	94.81185	0.9481185
500	714053	447.3269	0.8946537
1000	1331471	834.1156	0.8341156

Sample	Area Count	Dilution	Temperature (°C)	Concentration ppm and mg/L	Date and Time	Analyst	Sample	Test Code	Analyte
MBLK	0	1	20	0	1/20/2021 11:50	jdww	MBLK	HC-METHANE-W	Methane
MBLK	0	1	20	0	1/20/2021 11:50	jdww	MBLK	HC-METHANE-W	Ethane
MBLK	0	1	20	0	1/20/2021 11:50	jdww	MBLK	HC-METHANE-W	Ethene
Cal1	4682	1	20	2.9330938	1/20/2021 11:54	jdww	CCV	HC-METHANE-CCV	Methane
Cal1	8164	1	20	2.66692829	1/20/2021 11:54	jdww	CCV	HC-METHANE-CCV	Ethane
Cal1	8384	1	20	2.68217219	1/20/2021 11:54	jdww	CCV	HC-METHANE-CCV	Ethene
Cal2	8741	1	20	5.47590194	1/20/2021 12:00	jdww	CCV	HC-METHANE-CCV	Methane
Cal2	15792	1	20	5.15876183	1/20/2021 12:00	jdww	CCV	HC-METHANE-CCV	Ethane
Cal2	16206	1	20	5.18455183	1/20/2021 12:00	jdww	CCV	HC-METHANE-CCV	Ethene
Cal3	16844	1	20	10.5521213	1/20/2021 12:04	jdww	CCV	HC-METHANE-CCV	Methane
Cal3	31757	1	20	10.37403746	1/20/2021 12:04	jdww	CCV	HC-METHANE-CCV	Ethane
Cal3	31917	1	20	10.21074545	1/20/2021 12:04	jdww	CCV	HC-METHANE-CCV	Ethene
Cal4	79772	1	20	49.97410476	1/20/2021 12:09	jdww	CCV	HC-METHANE-CCV	Methane
Cal4	154538	1	20	50.48282269	1/20/2021 12:09	jdww	CCV	HC-METHANE-CCV	Ethane
Cal4	158708	1	20	50.7731613	1/20/2021 12:09	jdww	CCV	HC-METHANE-CCV	Ethene
Cal5	151345	1	20	94.81184983	1/20/2021 12:14	jdww	CCV	HC-METHANE-CCV	Methane
Cal5	295835	1	20	96.64021698	1/20/2021 12:14	jdww	CCV	HC-METHANE-CCV	Ethane
Cal5	301225	1	20	96.3665695	1/20/2021 12:14	jdww	CCV	HC-METHANE-CCV	Ethene
Cal6	714053	1	20	447.3268744	1/20/2021 12:22	jdww	CCV	HC-METHANE-CCV	Methane
Cal6	1359194	1	20	444.0069737	1/20/2021 12:22	jdww	CCV	HC-METHANE-CCV	Ethane
Cal6	1391019	1	20	445.0086452	1/20/2021 12:22	jdww	CCV	HC-METHANE-CCV	Ethene
Cal7	1331471	1	20	834.11562	1/20/2021 12:22	jdww	CCV	HC-METHANE-CCV	Methane
LCS	154662	1	20	96.88982337	1/20/2021 12:36	jdww	CCV	HC-METHANE-CCV	Methane
LCS	297724	1	20	97.25729532	1/20/2021 12:36	jdww	CCV	HC-METHANE-CCV	Ethane
LCS	303645	1	20	97.1407652	1/20/2021 12:36	jdww	CCV	HC-METHANE-CCV	Ethene

Calibration  
Methane, Ethane,  
Ethene  
JOW  
1/20/2021

\*ID MB

\* RUN #16482      JAN 20, 2021    11:50:13  
START

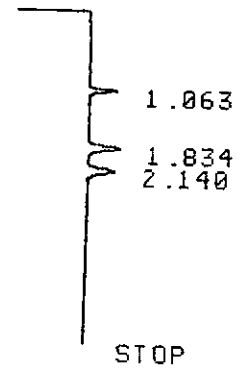


RUN# 16482      JAN 20, 2021    11:50:13

IDENTIFIER : MB  
NO RUN PERKS STORED

\*ID CAL1-2.5PPM

\* RUN #16483      JAN 20, 2021    11:54:22  
START



RUN# 16483      JAN 20, 2021    11:54:22

IDENTIFIER : CAL1-2.5PPM  
AREA%

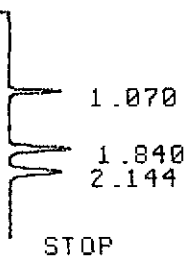
RT	AREA	TYPE	WIDTH	AREA%
1.063	4682	PP	.048	22.05370
1.834	8384	PV	.078	39.49128
2.140	8164	UP	.087	38.45502

TOTAL AREA= 21230  
MUL FACTOR=1.0000E+00

\*ID CAL2-5PPM

\* RUN #16484      JAN 20, 2021    12:00:03

START



RUN# 16484                      JAN 20, 2021    12:00:03

IDENTIFIER : CAL2-5PPM

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	8741	UP	.049	21.45610
1.840	16206	PU	.076	39.78006
2.144	15792	UU	.088	38.76384

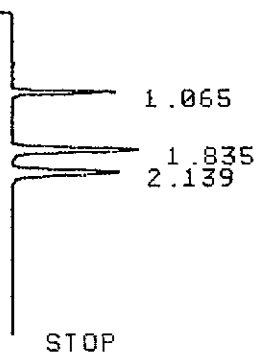
TOTAL AREA= 40739

MUL FACTOR=1.0000E+00

\*ID CAL3-10PPM

\* RUN #16485      JAN 20, 2021    12:04:08

START



RUN# 16485                      JAN 20, 2021    12:04:08

IDENTIFIER : CAL3-10PPM

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.065	16844	PU	.047	20.91955
1.835	31917	UP	.074	39.63958
2.139	31757	PU	.087	39.44088

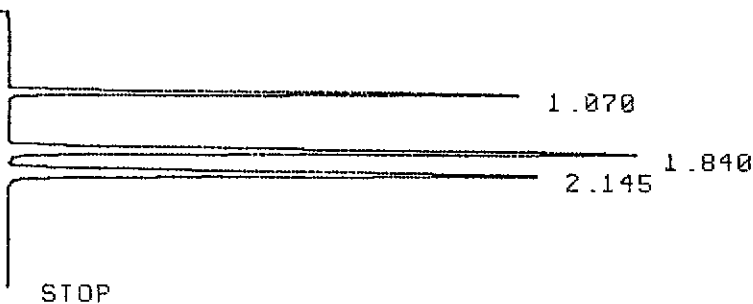
TOTAL AREA= 80518

MUL FACTOR=1.0000E+00

\*ID CAL4-50PPM

\* RUN #16486 JAN 20, 2021 12:09:55

START



RUN# 16486 JAN 20, 2021 12:09:55

IDENTIFIER : CAL4-50PPM  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	79772	PB	.046	20.29729
1.840	158708	PB	.075	40.38187
2.145	154538	BB	.087	39.32085

TOTAL AREA= 393018  
MUL FACTOR=1.0000E+00

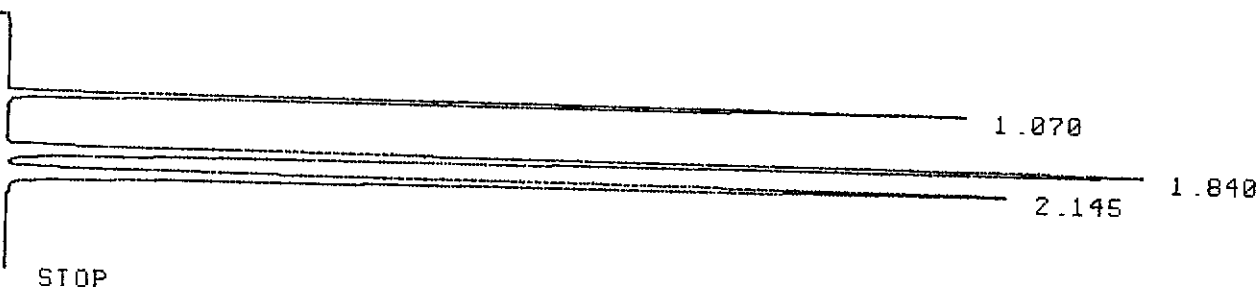
\*CAL5-100PPM

INVALID SYSTEM COMMAND

\*ID CAL5-100PPM

\* RUN #16487 JAN 20, 2021 12:14:46

START



RUN# 16487 JAN 20, 2021 12:14:46

IDENTIFIER : CAL5-100PPM  
AREA%

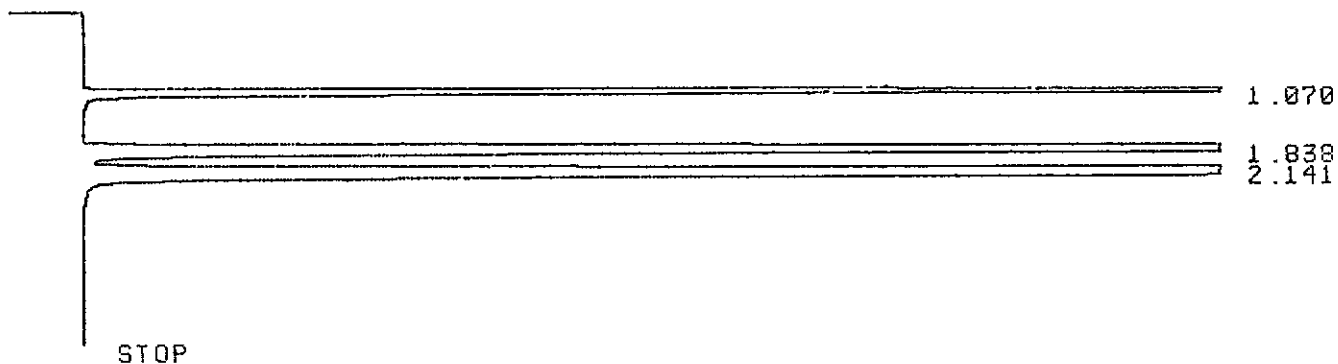
RT	AREA	TYPE	WIDTH	AREA%
1.070	151345	PB	.047	20.22234
1.840	301225	PB	.075	40.24893
2.145	295835	BB	.088	39.52874

TOTAL AREA= 748405  
MUL FACTOR=1.0000E+00



\*ID CAL6-500PPM

\* RUN #16488      JAN 20, 2021    12:22:48  
START



RUN# 16488      JAN 20, 2021    12:22:48

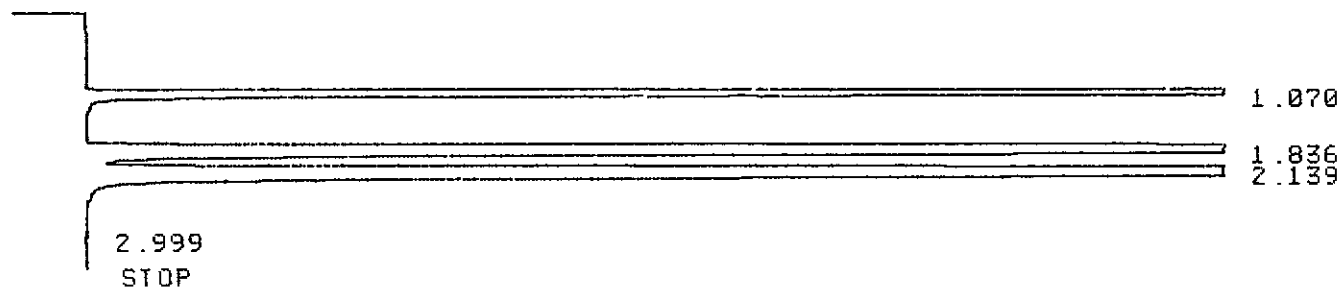
IDENTIFIER : CAL6-500PPM  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	714053	PB	.047	20.61195
1.838	1391019	PB	.077	40.15334
2.141	1359194	BB	.090	39.23469

TOTAL AREA=3464266  
MUL FACTOR=1.0000E+00

\*ID CAL7-1000PPM

\* RUN #16489      JAN 20, 2021    12:31:25  
START



RUN# 16489      JAN 20, 2021    12:31:25

IDENTIFIER : CAL7-1000PPM  
AREA%

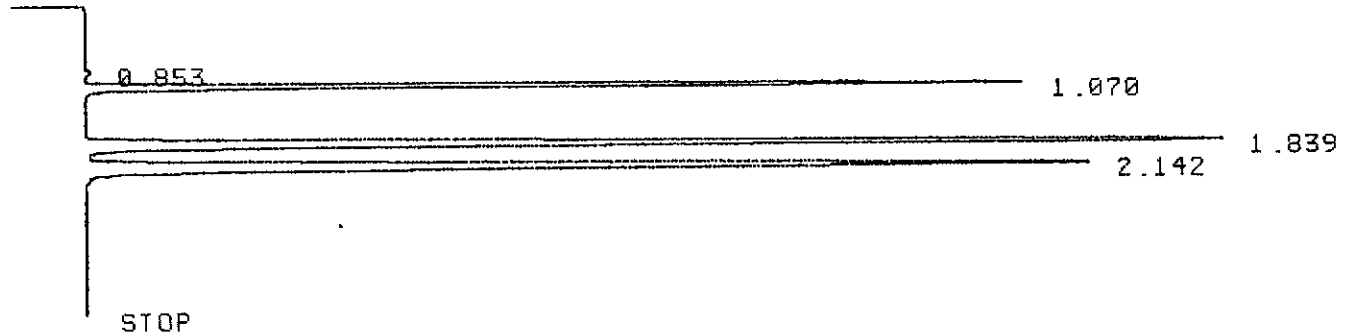
RT	AREA	TYPE	WIDTH	AREA%
1.070	1331471	PB	.049	21.86052

2.139 2333118 UB .095 37.95542  
2.999 795 PP .068 .01293

TOTAL AREA=6146995  
MUL FACTOR=1.0000E+00

\*ID 10711-LCS

\* RUN #16490 JAN 20, 2021 12:36:18  
START



RUN# 16490 JAN 20, 2021 12:36:18

IDENTIFIER : 10711-LCS  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.853	1141	PU	.054	.15069
1.070	154662	BB	.049	20.42627
1.839	303645	BU	.075	40.10251
2.142	297724	UU	.088	39.32053

TOTAL AREA= 757172  
MUL FACTOR=1.0000E+00

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# Energy Laboratories Inc

# ANALYTICAL RUN Summary

01-Feb-22

Run ID FID-HEADSPACE\_220131A

Run Start Date: 1/31/2022  
 Analyst: Jeff Whitmer  
 Ical:  
 Column ID: porapak Q  
 Comments:

Instrument ID	Description
1000_SGE_041819	1000 mL SGE Syringe _ Gas Tight

Std ID	Std Name	Std Amount	Std Units	Samp Amount	Samp Units	SampType	Expiration Date
10711	HC-Methane-W-CCV	0.3	ml			lcs	8/9/2022
12173	HC-Methane-W-CCV	0.3	ml			CCV	11/23/2023

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008532	CCV	HC-METHANE- CCV			1/31/2022 9:00:0	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		101.297608		100	0	0	2	2	0	101%	85	115	0%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008533	LCS	HC-METHANE- LCS			1/31/2022 9:06:0	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		99.5140715		100	0	0	2	2	0	100%	85	115	0%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008534	LCSD	HC-METHANE- LCSD			1/31/2022 9:12:0	1	R373954		0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		99.8204113		100	0	99.514072	2	2	0	100%	85	115	0%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008535	MBLK	HC-METHANE- MBLK			1/31/2022 10:07:	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

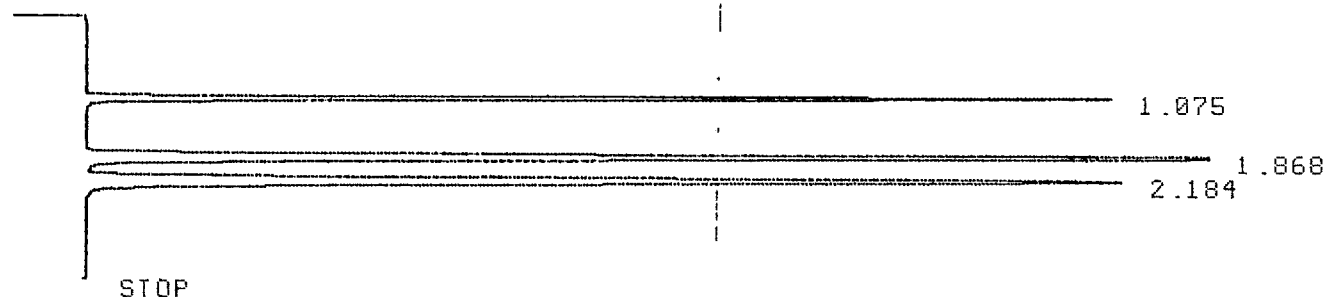
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008535	MBLK	HC-METHANE-	MBLK		1/31/2022 10:07:	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.001	0	0%	0	0	0%	
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008536	B22011717-001I	HC-METHANE-	SAMP		1/31/2022 10:13:	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008537	B22011717-001I	HC-METHANE-	DUP		1/31/2022 10:18:	1	R373954		0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0		
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008538	B22011717-005	HC-METHANE-	SAMP		1/31/2022 10:25:	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	mg/L		0			0	0	0.000704	0.002	0	0%	0	0	0%	U
Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15008539	CCV	HC-METHANE-	CCV		1/31/2022 10:29:	1	R373954		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Methane	A	ppm		101.551325		100	0	0	2	2	0	102%	85	115	0%	

Sample ID	Area Count	Dilution Factor	Temperature (C)	Concentration	Date/Time Analyzed	Analyst	Sample Type	Test Code	Analyte	Headspace Volume	Liquid Volume
CCV	161698	1	20	101.2976081	1/31/2022 9:00	jdw	CCV	HC-METHANE-CCV	Methane		
LCS	158851	1	20	99.51407154	1/31/2022 9:06	jdw	LCS	HC-METHANE-CCV	Methane		
LCSD	159340	1	20	99.82041132	1/31/2022 9:12	jdw	LCSD	HC-METHANE-CCV	Methane		
MBLK	989	1	20	0.000143902	1/31/2022 10:07	jdw	MBLK	HC-METHANE-W	Methane	10	32
B22011717-001I	466	1	20	-7.60976E-05	1/31/2022 10:13	jdw	SAMP	HC-METHANE-W	Methane	10	32
B22011717-001IDUP	1113	1	20	1.80423E-05	1/31/2022 10:18	jdw	DUP	HC-METHANE-W	Methane	10	32
B22011717-005A	1099	1	20	1.60052E-05	1/31/2022 10:25	jdw	SAMP	HC-METHANE-W	Methane	10	32
CCV	162103	1	20	101.5513251	1/31/2022 10:29	jdw	CCV	HC-METHANE-CCV	Methane		

SOW  
1/31/2022

\*ID 12173-500X-CCU

\* RUN #19254      JAN 31, 2022    09:00:49  
START



RUN# 19254      JAN 31, 2022    09:00:49

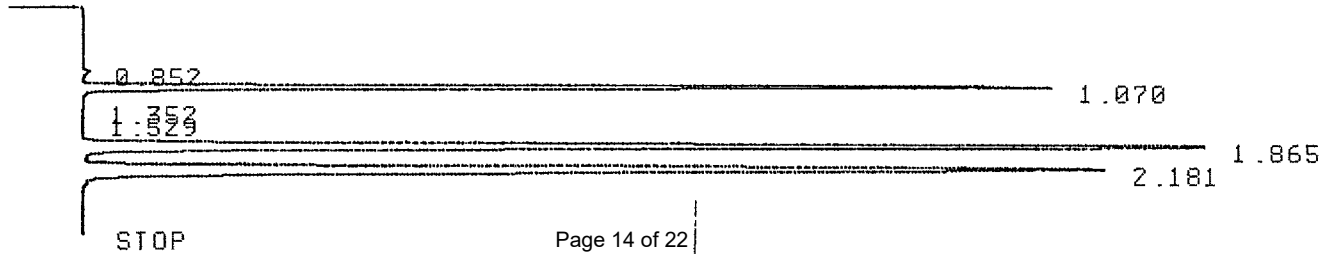
IDENTIFIER : 12173-500X-C  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.075	161698	PU	.046	20.25106
1.868	320761	PB	.076	40.17210
2.184	316008	PB	.089	39.57685

TOTAL AREA= 798467  
MUL FACTOR=1.0000E+00

\*ID 10711-LCS

\* RUN #19255      JAN 31, 2022    09:06:11  
START



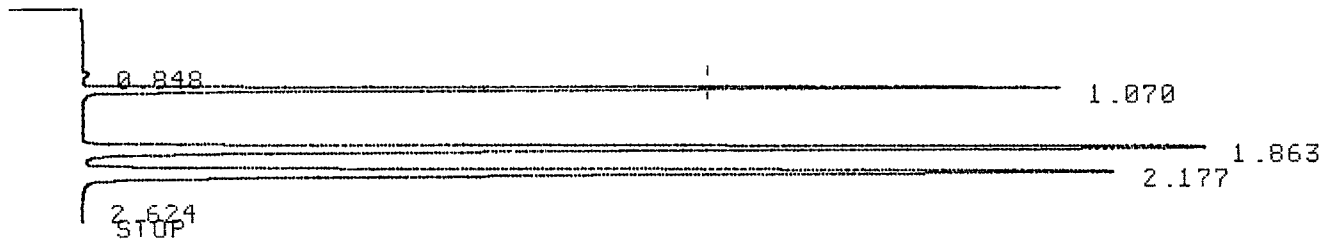
IDENTIFIER : 10711-LCS  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.852	1462	PP	.064	.18595
1.070	158851	UB	.048	20.20383
1.352	334	PU	.039	.04248
1.865	316202	PB	.076	40.21690
2.181	309393	BP	.089	39.35086

TOTAL AREA= 786242  
MUL FACTOR=1.0000E+00

\*ID 10711-LCSD

\* RUN #19256                    JAN 31, 2022 09:12:24  
START



IDENTIFIER : 10711-LCSD  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
.848	1049	UP	.046	.13285
1.070	159340	PB	.048	20.17993
1.863	316849	BB	.075	40.12718
2.177	311687	BU	.088	39.47344
2.624	687	PU	.095	.08700

TOTAL AREA= 789612  
MUL FACTOR=1.0000E+00

\*

\*ID MB

\* RUN #19257            JAN 31, 2022  10:07:00  
START

┌───  
│  
│ 1.075  
│  
└───  
STOP

RUN# 19257            JAN 31, 2022  10:07:00

IDENTIFIER : MB  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.075	989	PP	.076	100.00000

TOTAL AREA=        989  
MUL FACTOR=1.0000E+00

\*ID 1717-1I

\* RUN #19258            JAN 31, 2022  10:13:09  
START

┌───  
│  
│ 1.072  
│ 1.700  
│ :2.169  
└───  
STOP

RUN# 19258            JAN 31, 2022  10:13:09

IDENTIFIER : 1717-1I  
AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.072	466	BP	.038	100.00000

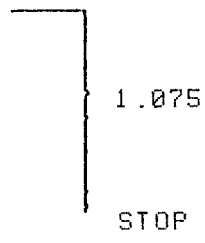
TOTAL AREA=        466  
MUL FACTOR=1.0000E+00



\*ID 1717-1I-DUP

\* RUN #19259            JAN 31, 2022 10:18:12

START



RUN# 19259                    JAN 31, 2022 10:18:12

IDENTIFIER : 1717-1I-DUP

AREA%

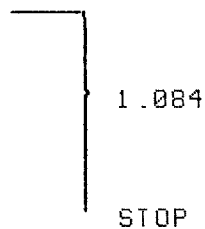
RT	AREA	TYPE	WIDTH	AREA%
1.075	1113	PU	.081	100.00000

TOTAL AREA= 1113  
MUL FACTOR=1.0000E+00

\*ID 1717-5A

\* RUN #19260            JAN 31, 2022 10:25:08

START



RUN# 19260                    JAN 31, 2022 10:25:08

IDENTIFIER : 1717-5A

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.084	1099	PU	.062	100.00000

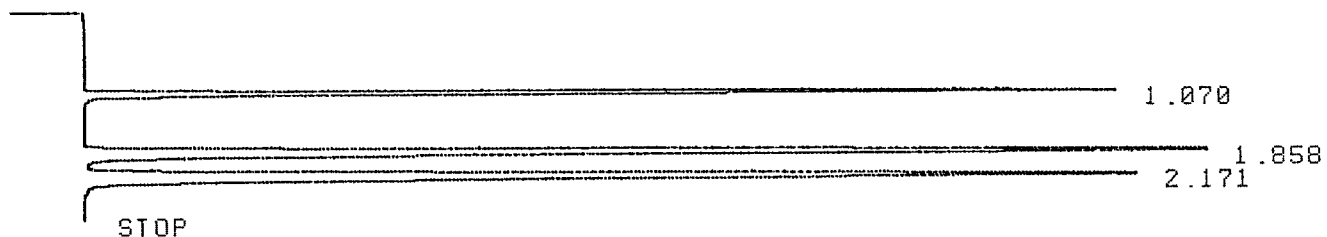
TOTAL AREA= 1099  
MUL FACTOR=1.0000E+00

\*

\*ID 12173-500X-CCU

\* RUN #19261      JAN 31, 2022 10:29:03

START



RUN# 19261      JAN 31, 2022 10:29:03

IDENTIFIER : 12173-500X-C

AREA%

RT	AREA	TYPE	WIDTH	AREA%
1.070	162103	PB	.046	20.15600
1.858	323757	BU	.075	40.25616
2.171	318382	UB	.089	39.58784

TOTAL AREA= 804242

MUL FACTOR=1.0000E+00

\*

# Energy Laboratories Inc

# Spike LOG

Standard ID: 12173  
 Standard Name: HC-Methane-W-CCV  
 Date Prepared: 11/22/2019  
 Date Expires: 11/23/2023  
 Department: GAS  
 Vendor: Matheson  
 Lot Number: 109-96-04454  
 Balance ID:

Type: Primary  
 BY:  
 Status: New

Comments: CCV Gas Standard for Methane, Ethene, Ethane: 50000ppm stock diluted from 100 - 500ppm with Helium for CCV. Diluted from 2.5ppm - 1000ppm with Helium for Calibration.

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
3 Multi-Component Gas Standard in Ni	12173		mL	11/23

Final Volume: mL

Stock Source

Base Units

Amount Added

Analyses

CAS

Conc: ug/mL

MATHESON TRI-GAS INC  
1650 Enterprise Pkwy  
Twinsburg, OH 44087  
1-215-648-4000

## CERTIFICATE OF ANALYSIS

Energy Laboratories Inc  
1120 South 27th Street  
Billings, MT 59101

Ref Po# 3008099

### 14 LITER DISPOSABLE

LOT NUMBER: 109-96-04454

COMPONENT

CONCENTRATION

methane	50010	ppm
ethane	50030	ppm
ethylene	50030	ppm
nitrogen	Bal	

ITEM NUMBER: GMT2685284TC

CGA: 160

PSIG: 240

FILL DATE: 11/22/19

EXPIRATION DATE: 11/23/23

ID #: 12173

Opened: \_\_\_\_\_

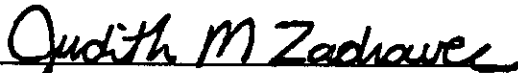
3 Multi-Component Gas Standard in Nitrogen

Expires: 11/23/2023

Rec'd: 12/3/2019

Energy Laboratories Inc 1120 So. 27th Street  
Billings MT 59107

Above are the results of the analysis you requested, as reported by our laboratory. Results are in mole percent, unless otherwise indicated. Mixture accuracy is  $\pm 2\%$ . NIST traceable by weights or gaseous standards.



Judy Zadravec, Chemist

10/19/2018

DATE

# Energy Laboratories Inc

# Spike LOG

Standard ID: 10711  
Standard Name: HC-Methane-W-CCV  
Date Prepared: 8/8/2018  
Date Expires: 8/9/2022  
Department: GAS  
Vendor: Matheson  
Lot Number: 109-86-03507  
Balance ID:

Type: Primary  
BY:  
Status: New

Comments: LCS Gas Standard for Methane, Ethene, Ethane: 100ppm per standard used undiluted for LCS

---

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
3 Multi-Component Gas Standard in Ni	10711		mL	8/9/22

Final Volume: mL

Stock Source

Base Units

Amount Added

Analyses

CAS

Conc: ug/mL

MATHESON TRI-GAS INC  
1650 Enterprise Pkwy  
Twinsburg, OH 44087  
1-215-648-4000

## CERTIFICATE OF ANALYSIS

Energy Laboratories Inc  
1120 South 27th Street  
Billings, MT 59101

Ref Po# 3005062

### 14 LITER DISPOSABLE

LOT NUMBER: 109-86-03507

**COMPONENT**

**CONCENTRATION**

methane	100.0	ppm
ethane	100.0	ppm
ethylene	100.0	ppm
nitrogen	Bal	

ITEM NUMBER: GMT2677328TC

CGA: 160

PSIG: 240

FILL DATE: 08/08/18

EXPIRATION DATE: 08/09/22

Above are the results of the analysis you requested, as reported by our laboratory. Results are in mole percent, unless otherwise indicated. Mixture accuracy is  $\pm 2\%$ . NIST traceable by weights or gaseous standards.

*Judith M Zadravec*

Judy Zadravec, Chemist

8/14/2018

DATE

ID #: 10711  
Opened: \_\_\_\_\_  
3 Multi-Component Gas Standard in Nitrogen  
Expires: 8/9/2022  
Rec'd: 8/27/2018  
Energy Laboratories Inc 1120 So. 27th Street  
Billings MT 59107