

Lampiran 1. Tabel Data Hasil pengujian Gas Chromatografi

TECHCOMP Chromatography Analysis Report

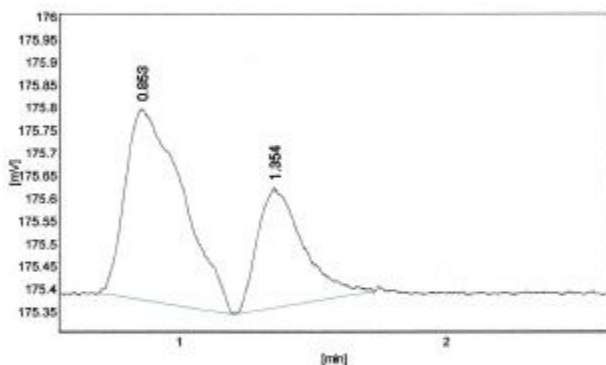
4KD-230

Chrom. File Name: C:\D-7900E\ChrData\4KD-230\4KD-230[EI-0919]_000001.smp (14-10-22 11:50:14)

Method Name: Gas Hidrogen (AreaNormalization)

Instrument Condition:

Inst. Model: GC7900; Equip.Code: Moiseve 5A
Detector: TCD, Temp=150.0C, Quenr=10mA
Inlet: PIP, Temp=150.0C
Column: Packed
Oven: 150C(5min)



General Results

Nos.	Compound	R.Time	Area[uV*S]	Area%	Type
1	Hidrogen	0.853	6439	67.26078	BP
2		1.354	3134	32.73922	PB
Total:			9573	100.00000	

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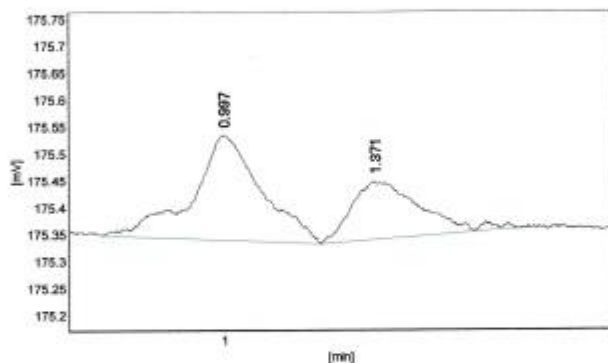
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Method Name: Gas Hidrogen (Area Normalization)

Instrument Condition:

Inst. Model: GC7900; Equip. Code: Molsieve 5A
 Detector: TCD, Temp=150.0C, Current=10mA
 Inlet: P/P, Temp=150.0C
 Column: Packed
 Oven: 150C(5min)



General Results

Nos.	Compound	R.Time	Area[uV*S]	Area%	Type
1	Hidrogen	0.997	2286	64.69840	BP
2		1.371	1238	35.33360	PB
Total:			3504	100.00000	



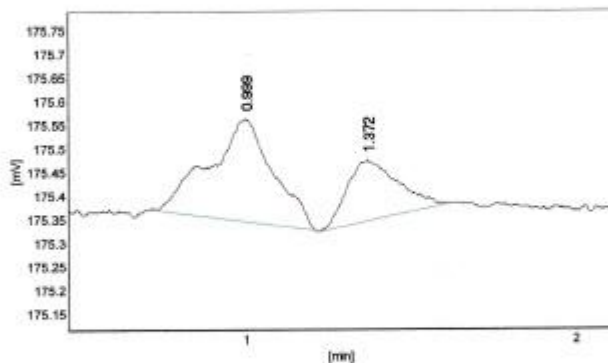
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Method Name: Gas Hidrogen (AreaNormalization)

Instrument Condition:

Inst. Model: GC7900 Equip Code: Molevie 5A
 Detector: TCD, Temp=150.0C, Current=10mA
 Inlet: PIP, Temp=150.0C
 Column: Packed
 Oven: 150C(5min)



General Results

Nos.	Compound	R.Time	Area [uV*S]	Area%	Type
1	Hidrogen	0.869	2936	68.01305	BB
2		1.372	1381	31.98895	BB
Total:			4317	100.00000	



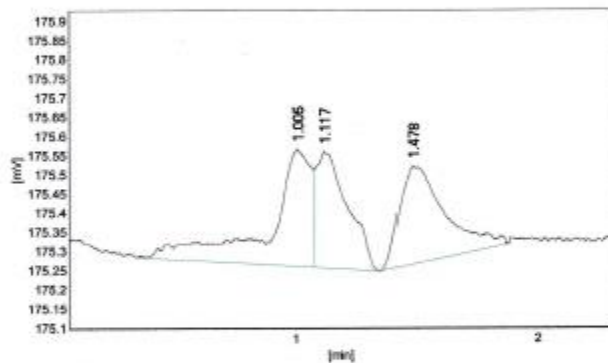
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Method Name: Gas Hidrogen (Area Normalization)

Instrument Condition:

Inst. Model: GC7900; Equip Code: Molesieve 5A
 Detector: TCD, Temp=150.0C, Current=10mA
 Inlet: PIP, Temp=150.0C
 Column: Packed
 Oven: 150C(5min)



General Results

Nos.	Compound	R.Time	Area [uV*S]	Area%	Type
1	Hidrogen	1.005	3.628	35.10350	BV
2	Hidrogen	1.117	2.720	24.83624	VB
3		1.478	4.358	39.96027	BB
Total:			10906	100.00002	



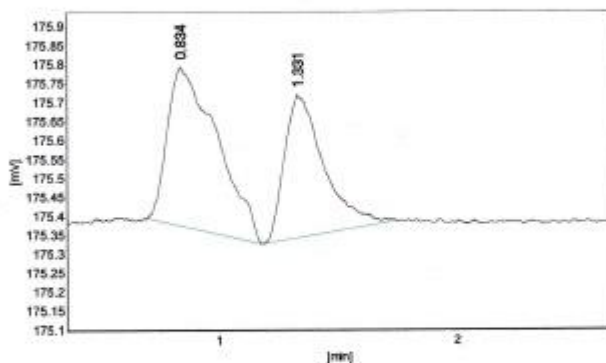
2KE-230

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Method Name: Gas Hidrogen (AreaNormalization)

Instrument Condition:

Inst. Model: GC7900; Equip Code: Moistive 5A
 Detector: TCD, Temp=150.0C, Current=10mA
 Inlet: PIP, Temp=150.0C
 Column: Packed
 Oven: 150C(5min)



General Results

Nos.	Compound	R.Time	Area[uV*S]	Area%	Type
1	Hidrogen	0.834	6211	58.86431	BP
2		1.331	4341	41.13569	PB
Total:			10552	100.00000	



2KB-300 EI-0919

Company: Lab. Energi ITS Surabaya

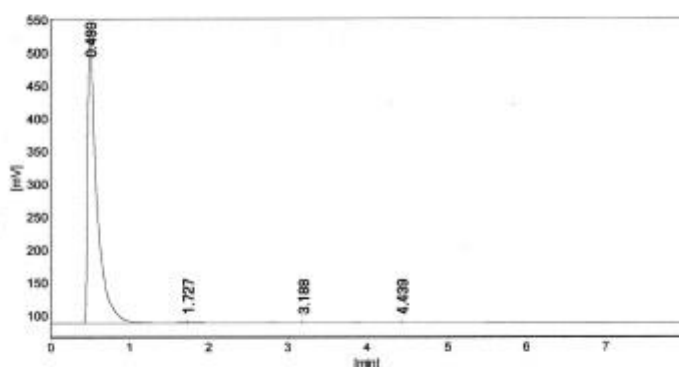
Analyst: Indri Meliani

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Method Name: Biogas Porapak Q (AreaESTD)

Instrument Condition:

Inst. Model: GC7900; Equip. Code: 1908SP-Q04
 Detector: TCD, Temp=200.0C, Current=60mA
 Inlet: QIP, Temp=80.0C
 Column: HP-PLOT/Q
 Oven: 43C(8min)



General Results

Nos.	Compound	R.Time	Height[uV]	Area[uV*S]	Area%	Type
1	Nitrogen	0.499	440587	3592679	99.42489	BB
2	CO2	1.727	517	9405	0.26027	BB
3		3.188	193	4300	0.11901	BB
4		4.439	217	7076	0.19583	BB
Total:			441514	3613480	100.00000	

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6KE-230 EI-0919

Company: Lab. Energi ITS Surabaya

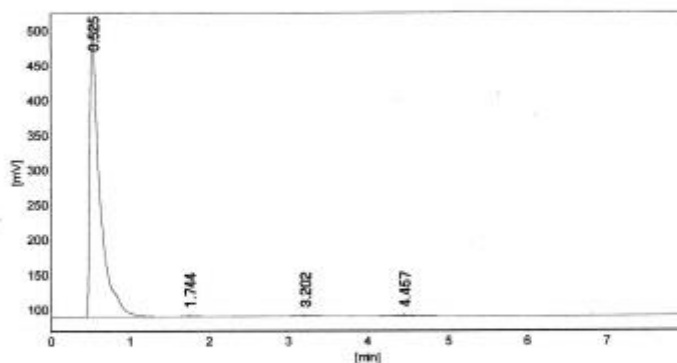
Analyst Indri Meilari

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Method Name: Biogas Porapak Q (AreaESTD)

Instrument Condition:

Inst. Model: GC7900; Equip. Code: 1908SP-004
 Detector: TCD, Temp=200.0C, Current=60mA
 Inlet: CP, Temp=80.0C
 Column: HP-PLOT/Q
 Oven: 43C(8min)



General Results

Nos.	Compound	R.Time	Height[uV]	Area[uV*S]	Area%	Type
1	Nitrogen	0.525	414897	3688908	98.46193	SBB
2	CO2	1.744	735	10586	0.28178	TBB
3		3.202	738	16171	0.43165	TBB
4		4.457	1042	30893	0.82484	BB
Total:			417412	3746228	99.99999	



4KD-230 EI-0919

Company: Lab. Energi ITS Surabaya

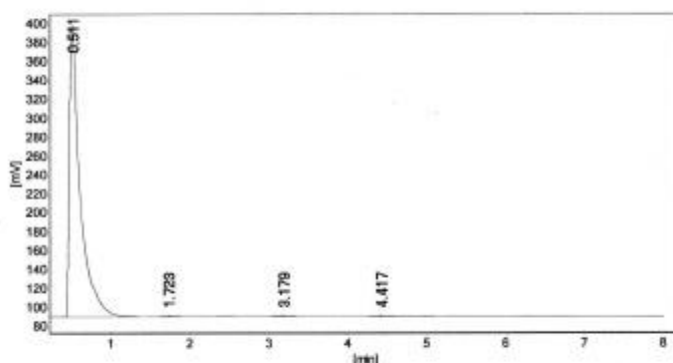
Analyst: Indri Meliani

Chrom. File Name: C:\D-7900E\ChData\4KD-230 EI-0919\4KD-230 EI-0919[EI-0919_000001.smp (14-10-23 12:34:13)

Method Name: Biogas Porapak Q (AreaESTD)

Instrument Condition:

Inst. Model: GC7900 Equip. Code: 19095PQ04
 Detector: TCD, Temp=200.0C, Current=60mA
 Inlet: GP, Temp=80.0C
 Column: HP-PLLOT/Q
 Oven: 43C(8min)



General Results

Nos.	Compound	R.Time	Height[μ V]	Area[μ V*S]	Area%	Type
1	Nitrogen	0.511	305927	2852457	98.65865	BB
2	CO2	1.723	510	7308	0.25277	BB
3		3.179	487	12356	0.42735	BB
4		4.417	591	19088	0.66022	BB
Total:			307515	2891209	99.99899	

Date/Time: 2014-10-23 14:10:08

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2KC-230 EI-0919

Company: Lab. Energi ITS Surabaya

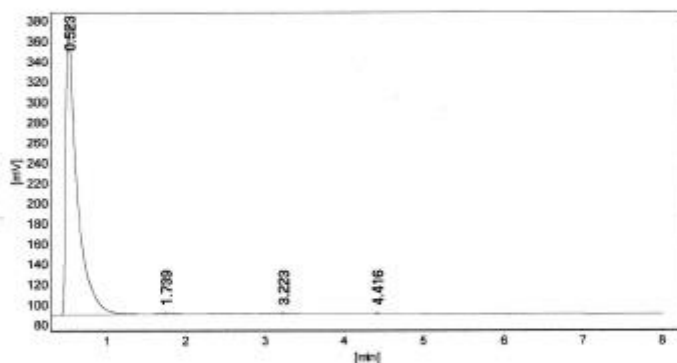
Analyst Indri Meilani

Chrom. File Name: C:\D-7900E1\ChData\2KC-230 EI-0919\2KC-230 EI-0919[EI-0919_000001.smp (14-10-23 12:24:59)

Method Name: Biogas Porapak Q (AreaESTD)

Instrument Condition:

Inst. Model: GC7900; Equip Code: 19095P-004
 Detector: TCD, Temp=200.0C, Current=60mA
 Inlet: CP, Temp=80.0C
 Column: HP-PLLOT/Q
 Oven: 43C(8min)



General Results

Nos.	Compound	R.Time	Height[uV]	Area[uV*S]	Area%	Type
1	Nitrogen	0.523	285577	2785504	99.34162	BB
2	CO2	1.739	407	5827	0.20781	BB
3		3.223	174	4415	0.15745	BB
4		4.416	269	8219	0.29312	BB
Total:			286427	2803665	100.00000	



2KA-180 EI-0919

Company: Lab. Energi ITS Surabaya

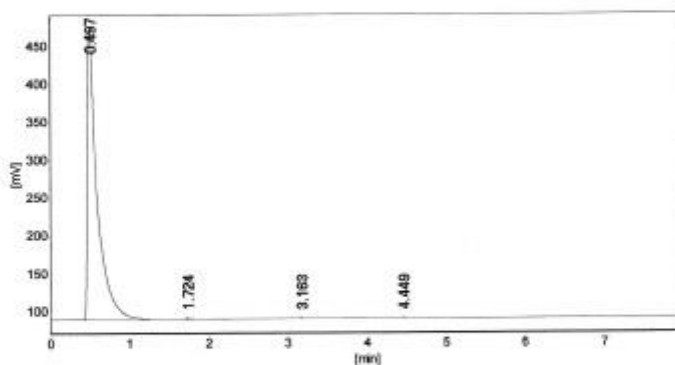
Analyst: Indri Meilani

Chrom. File Name: C:\D-7900E\ChData\2KA-180 EI-0919\2KA-180 EI-0919\000001.smp (14-10-23 12:43:50)

Method Name: Biogas Porapak Q (AreaESTD)

Instrument Condition:

Inst. Model: GC7900; Equip. Code: 18065P-Q04
 Detector: TCD, Temp=200.0C, Current=60mA
 Inlet: CIP, Temp=80.0C
 Column: HP-PLLOT/Q
 Overt: 43C(Bmin)



General Results

Nos.	Compound	R.Time	Height[uV]	Area[uV*S]	Area%	Type
1	Nitrogen	0.467	381804	3275317	99.60639	BB
2	CO2	1.724	336	4354	0.13241	BB
3		3.163	135	4392	0.13396	BB
4		4.449	132	4197	0.12784	BB
Total:			382407	3288260	100.00000	



Lampiran 3. Tabel Data Hasil Perhitungan

No	Jarak Magnet (cm)	Letak Titik	Kuat Medan magnet (mT)	Debit Udara (l/min)	AFR Stoikiometri	AFR Aktual	Equivalence Ratio (ϕ)	Sudut Api (θ)	Sin θ	Vu (cm/detik)	SL (cm/detik)
1				2	13.1	7.9	1.65822785	14	0.241	45.432236	10.95
2								0.208	9.45		
3								0.208	9.45		
4								0.174	7.91		
5								0.191	8.68		
6				2.5	13.1	9.8	1.33673469	9	0.156	56.081863	8.75
7								0.208	11.67		
8								0.259	14.53		
9								0.225	12.62		
10								0.174	9.76		
11				3	13.1	11.7	1.11965812	9	0.156	66.731490	10.41
12								0.139	9.28		
13								0.174	11.61		
14								0.156	10.41		
15								0.156	10.41		
16				3.5	13.1	13.8	0.94927536	5	0.087	77.381118	6.73
17								0.122	9.44		
18								0.191	14.78		
19								0.122	9.44		
20								0.156	12.07		
21				4	13.1	15.8	0.82911392	4	0.069	88.030745	6.07
22								0.069	6.07		
23								0.052	4.58		
24								0.104	9.16		
25								0.087	7.66		

No	Jarak Magnet (cm)	Letak Titik	Kuat Medan magnet (mT)	Debit Udara (l/min)	AFR Stoikiometri	AFR Aktual	Equivalence Ratio (ϕ)	Sudut Api (θ)	Sin θ	Vu (cm/detik)	SL (cm/detik)
1	2	1	30.1	2	13.1	7.9	1.65822785	16	0.276	45.432236	12.54
2								0.325	14.77		
3								0.241	10.95		
4								0.259	11.77		
5								0.292	13.27		
6				2.5	13.1	9.8	1.33673469	13	0.225	56.081863	12.62
7								0.208	11.67		
8								0.191	10.71		
9								0.191	10.71		
10								0.225	12.62		
11				3	13.1	11.7	1.11965812	9	0.156	66.731490	10.41
12								0.139	9.28		
13								0.174	11.61		
14								0.139	9.28		
15								0.156	10.41		
16				3.5	13.1	13.8	0.94927536	5	0.087	77.381118	6.73
17								0.139	10.76		
18								0.087	6.73		
19								0.122	9.44		
20								0.087	6.73		
21				4	13.1	15.8	0.82911392	4	0.069	88.030745	6.07
22								0.069	6.07		
23								0.069	6.07		
24								0.052	4.58		
25								0.052	4.58		

No	Jarak Magnet (cm)	Letak Titik	Kuat Medan magnet (mT)	Debit Udara (l/min)	AFR Stoikiometri	AFR Aktual	Equivalence Ratio (ϕ)	Sudut Api (θ)	Sin θ	Vu (cm/detik)	SL (cm/detik)
1	2	2	10.4	2	13.1	7.9	1.65822785	13	0.225	45.432236	10.22
2								15	0.259		11.77
3								17	0.292		13.27
4								14	0.241		10.95
5								15	0.259		11.77
6				2.5	13.1	9.8	1.33673469	13	0.225	56.081863	12.62
7								10	0.174		9.76
8								12	0.208		11.67
9								12	0.208		11.67
10								12	0.208		11.67
11				3	13.1	11.7	1.11965812	9	0.156	66.731490	10.41
12								10	0.174		11.61
13								7	0.122		8.14
14								8	0.139		9.28
15								10	0.174		11.61
16				3.5	13.1	13.8	0.94927536	6	0.104	77.381118	8.05
17								6	0.104		8.05
18								6	0.104		8.05
19								7	0.122		9.44
20								9	0.156		12.07
21				4	13.1	15.8	0.82911392	4	0.069	88.030745	6.07
22								4	0.069		6.07
23								4	0.069		6.07
24								3	0.052		4.58
25								6	0.104		9.16

No	Jarak Magnet (cm)	Letak Titik	Kuat Medan magnet (mT)	Debit Udara (l/min)	AFR Stoikiometri	AFR Aktual	Equivalence Ratio (ϕ)	Sudut Api (θ)	Sin θ	Vu (cm/detik)	SL (cm/detik)
1	2	3	29.8	2	13.1	7.9	1.65822785	12	0.208	45.432236	9.45
2								13	0.225		10.22
3								15	0.259		11.77
4								14	0.241		10.95
5								14	0.241		10.95
6				2.5	13.1	9.8	1.33673469	10	0.174	56.081863	9.76
7								11	0.191		10.71
8								14	0.241		13.52
9								13	0.225		12.62
10								13	0.225		12.62
11				3	13.1	11.7	1.11965812	11	0.191	66.731490	12.75
12								6	0.104		6.94
13								7	0.122		8.14
14								9	0.156		10.41
15								12	0.208		13.88
16				3.5	13.1	13.8	0.94927536	2	0.035	77.381118	2.71
17								3	0.052		4.02
18								2	0.035		2.71
19								2	0.035		2.71
20								2	0.035		2.71
21				4	13.1	15.8	0.82911392	2	0.035	88.030745	3.08
22								1	0.017		1.50
23								2	0.035		3.08
24								1	0.017		1.50
25								4	0.069		6.07