LAMPIRAN

Lampiran 1. Data Hasil Laju Pembentukan Hidrat

Data Hasil Laju Pembentukan Hidrat							
	Waktu	Temperatur *Cooling Bath*					
		Temperatur 271 K		Temperatur 273 K		Temperatur 275 K	
No.	menit	T (K)	P (bar)	T (K)	P (bar)	T (K)	P (bar)
1	0	302	4	302	4	302	4
2	15	274	2.74	275	2.41	277	2.58
3	30	274	2.24	275	2.41	277	2.57
4	45	273	2.23	275	2.39	277	2.53
5	60	273	2.23	275	2.39	277	2.52
6	75	273	2.23	275	2.38	277	2.51
7	90	273	2.23	275	2.38	277	2.47
8	105	273	2.23	275	2.38	277	2.47
9	120	273	2.23	275	2.33	277	2.4
10	135	273	2.23	275	2.33	277	2.29
11	150	273	2.23	275	2.29	277	2.28
12	165	273	2.23	275	2.29	277	2.28
13	180	273	2.23	275	2.25	277	2.28
14	195	273	2.23	275	2.25	277	2.28
15	210	273	2.23	275	2.25	277	2.25
16	225	273	2.23	275	2.24	277	2.25
17	240	273	2.22	275	2.22	277	2.25
18	255	273	2.22	275	2.22	277	2.25
19	270	273	2.22	275	2.22	277	2.23
20	285	273	2.22	275	2.21	277	2.23
21	300	273	2.22	275	2.21	277	2.22
22	315	273	2.21	275	2.21	277	2.22
23	330	273	2.21	275	2.19	277	2.22
24	345	273	2.21	275	2.16	277	2.21
25	360	273	2.21	275	2.15	277	2.21
26	375	273	2.2	275	2.15	277	2.18
27	390	273	2.2	275	2.14	277	2.18
28	405	273	2.2	275	2.11	277	2.13
29	420	273	2.2	275	2.11	277	2.13
30	435	273	2.19	275	2.09	277	2.11
31	450	273	2.19	275	2.09	277	1.98
32	465	273	2.19	275	2.08	277	1.98
33	480	273	2.18	275	2.08	277	1.98
34	495	273	2.18	275	2.07	277	1.94
35	510	273	2.17	275	2.07	277	1.94
36	525	273	2.17	275	2.06	277	1.93
37	540	273	2.16	275	2.04	277	1.92
38	555	273	2.15	275	2.01	277	1.9
39	570	273	2.14	275	2.01	277	1.9
40	585	273	2.14	275	2.01	277	1.9

Lampiran 2. Data Hasil Stabilitas Hidrat

Data Hasil Stabilitas Hidrat							
No.	Waktu	Temperatur *Cooling Bath*					
		Temperatur 271 K		Temperatur 273 K		Temperatur 275 K	
	menit	T (K)	P (bar)	T (K)	P (bar)	T (K)	P (bar)
1	0	271	0	271	0	272	0
2	10	271	0	271	0	271	0
3	20	271	0	271	0	271	0
4	30	271	0	271	0	271	0
5	40	271	0	271	0	271	0
6	50	271	0	271	0	271	0
7	60	271	0	271	0	271	0
8	70	271	0	271	0	271	0.01
9	80	271	0	271	0.01	271	0.01
10	90	271	0.01	271	0.01	271	0.01
11	100	271	0.01	271	0.01	271	0.01
12	110	271	0.01	271	0.01	271	0.01
13	120	271	0.01	271	0.01	271	0.01
14	130	271	0.01	271	0.02	271	0.02
15	140	271	0.01	271	0.02	271	0.02
16	150	271	0.01	271	0.02	271	0.02
17	160	271	0.01	271	0.02	271	0.02
18	170	271	0.02	271	0.02	271	0.02
19	180	271	0.02	271	0.03	271	0.03
20	190	271	0.02	271	0.03	271	0.03
21	200	271	0.02	271	0.03	271	0.03
22	210	271	0.02	271	0.03	271	0.03
23	220	271	0.02	271	0.03	271	0.04
24	230	271	0.02	271	0.03	271	0.04
25	240	271	0.03	271	0.04	271	0.04
26	250	271	0.03	271	0.04	271	0.04
27	260	271	0.03	271	0.04	271	0.05
28	270	271	0.03	271	0.04	271	0.05
29	280	271	0.03	271	0.04	271	0.05
30	290	271	0.03	271	0.04	271	0.05
31	300	271	0.03	271	0.04	271	0.05

Lampiran 3. Data Hasil Perhitungan Laju Pembentukan Hidrat

Data Hasil Perhitungan Laju Pembentukan Hidrat							
		Temperatur *Cooling Bath*					
	Waktu	Temperatur 271 K		Temperatur 273 K		Temperatur 275 K	
No.	menit	T (K)	n (mol)	T (K)	n (mol)	T (K)	n (mol)
1	0	302	0.00000	302	0.00000	302	0.00000
2	15	274	0.01132	275	0.01018	277	0.00905
3	30	274	0.01132	275	0.01018	277	0.00912
4	45	273	0.01139	275	0.01033	277	0.00941
5	60	273	0.01139	275	0.01033	277	0.00948
6	75	273	0.01139	275	0.01040	277	0.00955
7	90	273	0.01139	275	0.01040	277	0.00984
8	105	273	0.01139	275	0.01040	277	0.00984
9	120	273	0.01139	275	0.01076	277	0.01034
10	135	273	0.01139	275	0.01076	277	0.01112
11	150	273	0.01139	275	0.01104	277	0.01120
12	165	273	0.01139	275	0.01104	277	0.01120
13	180	273	0.01139	275	0.01133	277	0.01120
14	195	273	0.01139	275	0.01133	277	0.01120
15	210	273	0.01139	275	0.01133	277	0.01141
16	225	273	0.01139	275	0.01140	277	0.01141
17	240	273	0.01146	275	0.01154	277	0.01141
18	255	273	0.01146	275	0.01154	277	0.01141
19	270	273	0.01146	275	0.01154	277	0.01155
20	285	273	0.01146	275	0.01161	277	0.01155
21	300	273	0.01146	275	0.01161	277	0.01162
22	315	273	0.01153	275	0.01161	277	0.01162
23	330	273	0.01153	275	0.01175	277	0.01162
24	345	273	0.01153	275	0.01197	277	0.01169
25	360	273	0.01153	275	0.01204	277	0.01169
26	375	273	0.01160	275	0.01204	277	0.01190
27	390	273	0.01160	275	0.01211	277	0.01190
28	405	273	0.01160	275	0.01232	277	0.01226
29	420	273	0.01160	275	0.01232	277	0.01226
30	435	273	0.01167	275	0.01246	277	0.01240
31	450	273	0.01167	275	0.01246	277	0.01331
32	465	273	0.01167	275	0.01253	277	0.01331
33	480	273	0.01175	275	0.01253	277	0.01331
34	495	273	0.01175	275	0.01260	277	0.01359
35	510	273	0.01182	275	0.01260	277	0.01359
36	525	273	0.01182	275	0.01267	277	0.01366
37	540	273	0.01189	275	0.01281	277	0.01373
38	555	273	0.01196	275	0.01302	277	0.01386
39	570	273	0.01203	275	0.01302	277	0.01386
40	585	273	0.01203	275	0.01302	277	0.01386

Lampiran 4. Data Hasil Perhitungan Stabilitas Hidrat

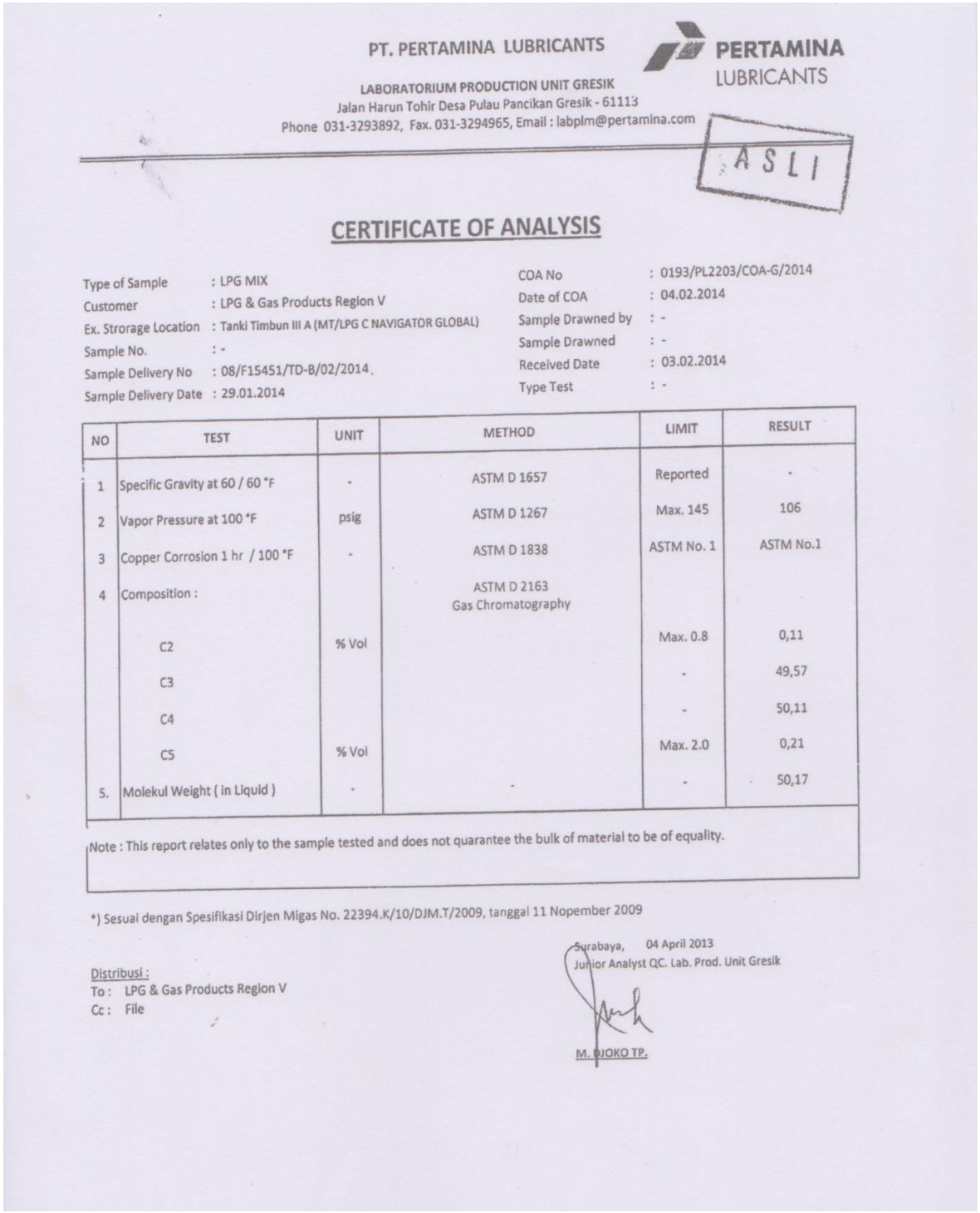
Data Hasil Perhitungan Stabilitas Hidrat							
No.	Waktu	Temperatur *Cooling Bath*					
		Temperatur 271 K		Temperatur 273 K		Temperatur 275 K	
	menit	T (K)	n (mol)	T (K)	n (mol)	T (K)	n (mol)
1	0	271	0.00000	271	0.00000	272	0.00000
2	10	271	0.00000	271	0.00000	271	0.00000
3	20	271	0.00000	271	0.00000	271	0.00000
4	30	271	0.00000	271	0.00000	271	0.00000
5	40	271	0.00000	271	0.00000	271	0.00000
6	50	271	0.00000	271	0.00000	271	0.00000
7	60	271	0.00000	271	0.00000	271	0.00000
8	70	271	0.00000	271	0.00000	271	0.00007
9	80	271	0.00000	271	0.00007	271	0.00007
10	90	271	0.00007	271	0.00007	271	0.00007
11	100	271	0.00007	271	0.00007	271	0.00007
12	110	271	0.00007	271	0.00007	271	0.00007
13	120	271	0.00007	271	0.00007	271	0.00007
14	130	271	0.00007	271	0.00013	271	0.00013
15	140	271	0.00007	271	0.00013	271	0.00013
16	150	271	0.00007	271	0.00013	271	0.00013
17	160	271	0.00007	271	0.00013	271	0.00013
18	170	271	0.00013	271	0.00013	271	0.00013
19	180	271	0.00013	271	0.00020	271	0.00020
20	190	271	0.00013	271	0.00020	271	0.00020
21	200	271	0.00013	271	0.00020	271	0.00020
22	210	271	0.00013	271	0.00020	271	0.00020
23	220	271	0.00013	271	0.00020	271	0.00026
24	230	271	0.00013	271	0.00020	271	0.00026
25	240	271	0.00020	271	0.00026	271	0.00026
26	250	271	0.00020	271	0.00026	271	0.00026
27	260	271	0.00020	271	0.00026	271	0.00033
28	270	271	0.00020	271	0.00026	271	0.00033
29	280	271	0.00020	271	0.00026	271	0.00033
30	290	271	0.00020	271	0.00026	271	0.00033
31	300	271	0.00020	271	0.00026	271	0.00033

Lampiran 5. Data Hasil Perhitungan Laju Pembentukan Hidrat Aktual

Data Hasil Perhitungan Laju Pembentukan Hidrat Aktual							
		Temperatur *Cooling Bath*					
	Waktu	Temperatur 271 K		Temperatur 273 K		Temperatur 275 K	
No.	menit	T (K)	n (mol)	T (K)	n (mol)	T (K)	n (mol)
1	0	302	0	302	0	302	0
2	15	274	0.0113173	275	0.0101838	277	0.0090486
3	30	274	0.0113173	275	0.0101838	277	0.0091208
4	45	273	0.0113887	275	0.0103273	277	0.0094089
5	60	273	0.0113887	275	0.0103273	277	0.0094809
6	75	273	0.0113887	275	0.0103989	277	0.0095528
7	90	273	0.0113887	275	0.0103989	277	0.0098400
8	105	273	0.0113887	275	0.0103989	277	0.0098400
9	120	273	0.0113887	275	0.0107568	277	0.0103410
10	135	273	0.0113887	275	0.0107568	277	0.0111245
11	150	273	0.0113887	275	0.0110424	277	0.0111955
12	165	273	0.0113887	275	0.0110424	277	0.0111955
13	180	273	0.0113887	275	0.0113273	277	0.0111955
14	195	273	0.0113887	275	0.0113273	277	0.0111955
15	210	273	0.0113887	275	0.0113273	277	0.0114082
16	225	273	0.0113887	275	0.0113985	277	0.0114082
17	240	273	0.0114601	275	0.0115406	277	0.0114082
18	255	273	0.0114601	275	0.0115406	277	0.0114082
19	270	273	0.0114601	275	0.0115406	277	0.0115499
20	285	273	0.0114601	275	0.0116117	277	0.0115499
21	300	273	0.0114601	275	0.0116117	277	0.0116206
22	315	273	0.0115314	275	0.0116117	277	0.0116206
23	330	273	0.0115314	275	0.0117536	277	0.0116206
24	345	273	0.0115314	275	0.0119662	277	0.0116913
25	360	273	0.0115314	275	0.0120370	277	0.0116913
26	375	273	0.0116027	275	0.0120370	277	0.0119032
27	390	273	0.0116027	275	0.0121077	277	0.0119032
28	405	273	0.0116027	275	0.0123198	277	0.0122556
29	420	273	0.0116027	275	0.0123198	277	0.0122556
30	435	273	0.0116740	275	0.0124609	277	0.0123963
31	450	273	0.0116740	275	0.0124609	277	0.0133070
32	465	273	0.0116740	275	0.0125314	277	0.0133070
33	480	273	0.0117452	275	0.0125314	277	0.0133070
34	495	273	0.0117452	275	0.0126019	277	0.0135859
35	510	273	0.0118164	275	0.0126019	277	0.0135859
36	525	273	0.0118164	275	0.0126724	277	0.0136555
37	540	273	0.0118875	275	0.0128131	277	0.0137251
38	555	273	0.0119586	275	0.0130240	277	0.0138642

39	570	273	0.0120297	275	0.0130240	277	0.0138642
40	585	273	0.0120297	275	0.0130240	277	0.0138642

Lampiran 6. Komposisi *Liquified Petroleum* Gas (LPG)



PT. PERTAMINA LUBRICANTS

PERTAMINA LUBRICANTS

LABORATORIUM PRODUCTION UNIT GRESIK
Jalan Harun Tohir Desa Pulau Pancikan Gresik - 61113
Phone 031-3293892, Fax. 031-3294965, Email : labplm@pertamina.com

ASLI

CERTIFICATE OF ANALYSIS

Type of Sample : LPG MIX
Customer : LPG & Gas Products Region V
Ex. Strorage Location : Tanki Timbun III A (MT/LPG C NAVIGATOR GLOBAL)
Sample No. : -
Sample Delivery No : 08/F15451/TD-B/02/2014.
Sample Delivery Date : 29.01.2014

COA No : 0193/PL2203/COA-G/2014
Date of COA : 04.02.2014
Sample Drawned by : -
Sample Drawned : -
Received Date : 03.02.2014
Type Test : -

NO	TEST	UNIT	METHOD	LIMIT	RESULT
1	Specific Gravity at 60 / 60 °F	-	ASTM D 1657	Reported	-
2	Vapor Pressure at 100 °F	psig	ASTM D 1267	Max. 145	106
3	Copper Corrosion 1 hr / 100 °F	-	ASTM D 1838	ASTM No. 1	ASTM No.1
4	Composition :		ASTM D 2163 Gas Chromatography		
	C2	% Vol		Max. 0.8	0,11
	C3			-	49,57
	C4			-	50,11
	C5	% Vol		Max. 2.0	0,21
5.	Molekul Weight (in Liquid)	-	-	-	50,17

Note : This report relates only to the sample tested and does not quarantee the bulk of material to be of equality.

*) Sesuai dengan Spesifikasi Dirjen Migas No. 22394.K/10/DJM.T/2009, tanggal 11 Nopember 2009

Surabaya, 04 April 2013
Junior Analyst QC. Lab. Prod. Unit Gresik

M. DJOKO TP.

Distribusi :
To : LPG & Gas Products Region V
Cc : File

Lampiran 7. Data Kalibrasi *Flowmeter*

No.	0.75	1	1.25	1.5
1	140	200	230	280
2	140	200	230	280
3	140	200	230	280
rata2	140	200	230	280
	0.14	0.2	0.23	0.28