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EXECUTIVE SUMMARY

PART II: Slim Tube MMP Determination using carbon dioxide as injection gas

Four slim tube tests had been conducted at 110 °C using the reservoir fluid and carbon dioxide. The displacement pressures of the four tests were 242, 275, 310, and 368 bars. Visual observation of the effluent from the slim tube showed distinct gas/oil interface for the test conducted at 242 and 275 bars. No distinct gas oil interface was observed during displacement at 310 and 368 bars. Plot of oil recovery at 1.0 pore volume of gas injected versus displacement pressures gave a minimum miscibility pressure of 293 bars. Plot of oil recovery at gas breakthrough versus displacement pressures also gave a MMP at around 293 bars.

3.0 Slim Tube Tests with Reservoir Fluid and Carbon Dioxide

3.1 Results and Discussion

Four slim tests were conducted using carbon dioxide as injection gas at a temperature of 110 °C and pressures of 242, 275, 310 and 368 bars. The major results are summarized in Table 6 and Figure 11-12. Details of each of the slim tube displacement results are summarized in Tables 7-10 and Figure 13-20.

Figure 11 shows a plot of the oil recovery at 1.0 pore volume of carbon dioxide injected versus displacement pressures of the four tests. It shows a change in slope around 293 bars for the oil recovery versus displacement pressure plot. This suggests that the minimum miscibility pressure of the reservoir fluid and carbon dioxide could be around 293 bars [1].

Visual observation of the effluent of the slim tube conducted at 275 bars showed a distinct gas/oil interface after 0.9 pore volume of gas injected. Gas oil interface was also observed for the slim tube test conducted at 242 bars

Photographs # - # included in the Appendix was reproduced from the video taken during the experiment conducted at a pressure of 275 bars. The photograph clearly indicates the presence of a gas oil interface phase during gas breakthrough.

During the slim tube test at pressures of 310 and 368 bars, gas breakthrough occurred after more than 0.9 pore volume of gas had been injected. No distinct gas oil interface was observed. Figure 12 shows plot of oil recovery at gas breakthrough versus displacement pressure. It shows a change in slope around 293 bars.

3.11 Slim Tube Test No. 5 (Displacement pressure = 242 bars)

Results of this test are summarized in Table 7 and Figure 13-14. The oil recovery of this test was 56.15 ml or 83.8% of original oil in place (OOIP) after injection of 1.0 pore volume of CO₂. Oil recovery at 1.2 pore volume injected was 57.80 ml or 86.27 % of OOIP. Gas break-through occurred after approximately 0.8 pore volume of gas had been injected. Breakthrough recovery was 50.52 ml or 75.4 % of OOIP. Visual observation of the effluent from the slim tube show distinct gas/oil interface during gas breakthrough. The ultimate oil recovery was approximately 59.29 ml of oil (88.5% recovery)

3.12 Slim Tube Test No. 6 (Displacement pressure = 275 bars)

Results from this test are summarized in Table 8 and Figure 15-16. The oil recovery at 1.0 pore volume injected was 59.40 ml or 88.66 % of OOIP. Oil recovery at 1.2 pore volume injected was 63.18 ml or 94.30 % of OOIP. Breakthrough occurred after 0.95 pore volume of gas was injected. Oil recovery at gas break through was 56.67 ml or 85.58% of OOIP. Ultimate oil recovery was 64.21 ml or 95.84% of OOIP

Photograph 1-3 included in the Appendix was prepared from the video tape taken during the test. It shows the gas/oil phase behaviour of the effluent from the slim tube just before and after the breakthrough.

3.13 Slim Tube Test No. 7 (Displacement pressure = 310 bars)

Results from this test are summarized in Table 9 and Figure 17-18. As indicated in Fig.17, The oil recovery at 1.0 pore volume gas injected was 61.75 ml (92.16% of OOIP) Oil recovery at 1.2 pore volume injected was 63.31 ml or 94.93 % of OOIP. Gas breakthrough occurred after 0.9 pore volume of gas had been injected at breakthrough recovery was 59.95 ml or 89.48%.

Ultimate oil recovery was 64.65 ml or 96.49% of OOIP.

3.14 Slim Tube Test No. 8 (Displacement pressure = 368 bars)

Results from this test are summarized in Table 10 and Figure 19-20. The oil recovery at 1.0 pore volume gas injected was 63.68 ml or 95.04%. Oil recovery at 1.2 pore volume of gas injected is 64.58 ml or 96.39%. Gas breakthrough occurred after 0.9 pore volume of gas had been injected. The oil recovery at gas breakthrough was 61.96 ml or 92.5 % of original oil in place. The ultimate oil recovery was 65.09 ml or 97.15% OOIP

Table 6: Summary of Results from Slim Tube Test with Carbon Dioxide			
Displacement Pressure (bars)	Oil Recovery at 1.0 PV injected (ml)	Oil Recovery at 1.2 PV injected (ml)	Oil Recovery at gas breakthrough
242	56.15	58.21	50.52
275	59.40	63.18	56.67
310	61.75	63.31	61.00
368	63.68	64.58	61.96

TABLE 7: SLIM TUBE DISPLACEMENT WITH CARBON DIOXIDE AT 242 BARS

Time	PV of gas injected	Pressure drop	Gas produced	Dead oil produced	Live oil produced	Injection pressure
Sec		bars	(M ³)	gm	ml	bars
0	0		0.01	0	0	246.21
900	0.02	13.10	0.02	0.04	0.11	246.90
1800	0.04	49.38	0.36	0.10	0.17	248.28
2700	0.06	36.41	0.90	1.44	2.32	247.59
3600	0.07	32.69	1.20	2.50	4.02	246.21
4500	0.09	18.34	1.28	3.01	4.85	246.90
5400	0.11	27.03	1.38	3.62	5.83	248.28
6300	0.13	31.03	1.52	4.41	7.09	247.59
7200	0.15	29.38	1.64	5.22	8.40	247.59
8100	0.17	30.62	1.78	6.03	9.71	247.59
9000	0.19	26.90	1.90	6.94	11.17	246.90
9900	0.21	24.97	2.02	7.81	12.57	246.90
10800	0.22	23.45	2.14	8.61	13.86	246.90
11700	0.24	20.28	2.22	9.37	15.09	246.90
12600	0.26	19.72	2.32	10.07	16.21	246.90
13500	0.28	17.38	2.42	10.79	17.38	246.21
14400	0.30	16.55	2.52	11.48	18.49	246.90
15300	0.32	15.45	2.60	12.27	19.75	246.21
16200	0.34	12.00	2.70	13.01	20.94	246.90
17100	0.35	10.48	2.80	13.73	22.10	246.90
18000	0.37	9.79	2.88	14.47	23.30	246.90
18900	0.39	10.76	2.96	15.14	24.37	247.59
19800	0.41	16.69	3.04	15.63	25.16	246.90
20700	0.43	43.17	3.34	17.05	27.45	246.21
21600	0.45	5.93	3.40	18.09	29.13	245.52
22500	0.47	8.83	3.44	18.36	29.57	246.90
23400	0.49	17.93	3.52	18.88	30.39	246.90
24300	0.50	19.72	3.72	20.07	32.31	246.90
25200	0.52	16.69	3.98	21.64	34.84	245.52
26100	0.54	3.45	4.16	23.21	37.37	244.83
27000	0.56	13.66	4.22	23.41	37.68	246.21
27900	0.58	3.03	4.32	24.30	39.12	245.52
28800	0.60	3.86	4.30	24.46	39.37	246.21
29700	0.62	10.21	4.36	24.74	39.83	246.90
30600	0.63	5.38	4.58	25.84	41.60	246.90
31500	0.65	5.10	4.62	26.53	42.72	246.90
32400	0.67	6.34	4.72	27.21	43.81	246.90
33300	0.69	5.52	4.80	28.04	45.15	246.90

34200	0.71	4.14	4.98	28.56	45.98	246.90
35100	0.73	6.21	5.04	29.37	47.29	246.90
36000	0.75	3.45	5.24	29.93	48.19	246.21
36900	0.76	4.24	5.36	30.44	49.00	247.59
37800	0.78	4.14	5.56	31.07	50.02	246.90
38700	0.80	4.41	5.78	31.38	50.52	246.21
39600	0.82	7.86	6.16	31.99	51.50	245.52
40500	0.84	4.14	6.55	33.97	54.69	237.93
41400	0.86	0.83	6.93	35.02	56.38	235.17
42300	0.88	0.83	7.31	34.98	56.32	235.86
43200	0.90	0.97	7.69	34.92	56.23	237.93
44100	0.91	1.38	8.08	34.89	56.17	238.62
45000	0.93	1.10	8.46	34.87	56.14	240.00
45900	0.95	1.10	8.84	34.86	56.12	241.38
46800	0.97	1.24	9.22	34.84	56.10	242.76
47700	0.99	1.10	9.61	34.85	56.11	244.14
48600	1.01	1.24	9.99	34.89	56.18	244.14
49500	1.03	2.48	10.37	34.87	56.14	245.52
50400	1.04	2.34	11.00	34.89	56.17	244.83
51300	1.06	1.10	10.98	34.97	56.30	246.90
52200	1.08	1.52	11.00	35.03	56.40	247.59
53100	1.10	4.41	11.90	35.23	56.72	246.21
54000	1.12	5.24	12.54	35.37	56.94	245.52
54900	1.14	4.14	13.16	35.54	57.22	245.52
55800	1.16	3.17	13.68	35.65	57.39	244.83
56700	1.18	4.00	14.34	35.73	57.53	244.83
57600	1.19	3.86	14.98	35.86	57.73	244.14
58500	1.21	1.24	15.50	35.96	57.89	243.45
59400	1.23	1.24	15.52	36.02	57.99	244.83
60300	1.25	1.24	15.52	36.07	58.06	245.52
61200	1.27	1.10	15.52	36.10	58.12	246.90
62100	1.29	1.66	15.52	36.09	58.11	246.90
63000	1.31	4.41	15.82	36.04	58.03	246.90
63900	1.32	4.41	16.46	36.09	58.11	246.21
64800	1.34	2.07	16.92	36.17	58.24	245.52
65700	1.36	3.72	17.22	36.21	58.30	246.21
66600	1.38	1.79	17.72	36.31	58.46	245.52
67500	1.40	1.79	17.84	36.34	58.51	246.21
68400	1.42	1.93	18.00	36.35	58.53	246.21
69300	1.44	2.48	18.18	36.38	58.57	247.59
70200	1.46	2.90	18.52	36.37	58.56	247.59
71100	1.47	2.76	19.00	36.44	58.66	246.90
72000	1.49	2.90	19.38	36.47	58.72	246.21
72900	1.51	3.03	19.74	36.49	58.74	246.21
73800	1.53	3.31	20.42	36.54	58.83	244.83
74700	1.55	3.59	21.10	36.60	58.93	244.14
75600	1.57	3.45	21.62	36.63	58.97	244.14
76500	1.59	2.34	21.78	36.68	59.05	245.52
77400	1.60	2.90	22.20	36.74	59.15	244.14
78300	1.62	2.48	22.48	36.80	59.24	244.83

79200	1.64	2.90	22.96	36.82	59.29	245.52
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TABLE 8: SLIM TUBE DISPLACEMENT WITH CARBON DIOXIDE AT 275 BARS						
TIME	PORE VOLUME INJECTED	PRESSURE DROP	GAS	DEAD OIL	LIVE OIL	INJECTION PRESSURE
(Sec)		bars	(M ³)	(grams)	(ml)	(bars)
0	0.00	0.34	0.04	0	0	264.1
900	0.02	28.14	0.42	0.22	0.35	263.4
1800	0.04	13.79	1.18	0.17	0.28	260.0
2700	0.06	-8.55	1.48	0.05	0.08	261.4
3600	0.07	0.41	1.48	1.60	2.56	265.5
4500	0.09	0.97	1.50	1.59	2.56	270.3
5400	0.11	5.86	1.48	1.59	2.55	273.8
6300	0.13	5.72	1.48	1.59	2.55	276.6
7200	0.15	4.28	1.48	1.68	2.69	280.0
8100	0.17	9.38	1.50	2.47	3.96	282.8
9000	0.19	13.17	1.80	3.68	5.90	280.7
9900	0.21	13.31	2.00	4.30	6.90	280.0
10800	0.22	13.79	2.16	4.88	7.84	280.7
11700	0.24	12.83	2.26	5.48	8.79	283.4
12600	0.26	12.69	2.40	5.79	9.29	282.8
13500	0.28	11.03	2.52	6.40	10.28	283.4
14400	0.30	11.66	2.68	7.16	11.50	282.8
15300	0.32	11.24	2.82	7.93	12.72	283.4
16200	0.34	10.00	2.92	8.55	13.72	284.8
17100	0.35	15.66	3.06	9.35	15.00	284.8
18000	0.37	9.17	3.18	10.31	16.55	284.1
18900	0.39	8.41	3.32	11.12	17.85	284.1
19800	0.41	8.55	3.46	12.13	19.47	282.8
20700	0.43	8.00	3.52	12.77	20.50	284.1
21600	0.45	8.21	3.70	13.85	22.23	282.8
22500	0.47	4.48	3.84	14.71	23.61	281.4
23400	0.49	6.00	4.00	15.87	25.47	280.7
24300	0.50	5.10	4.08	16.52	26.51	280.7
25200	0.52	5.72	4.16	17.20	27.61	281.4
26100	0.54	6.34	4.26	17.91	28.74	282.1
27000	0.56	9.66	4.38	18.66	29.95	281.4
27900	0.58	5.38	4.54	19.81	31.79	280.7
28800	0.60	4.97	4.62	20.68	33.18	280.7
29700	0.62	4.83	4.72	21.44	34.42	280.7
30600	0.63	4.69	4.82	22.30	35.79	280.7
31500	0.65	4.28	4.94	23.08	37.04	280.7
32400	0.67	1.59	5.02	23.75	38.12	277.9
33300	0.69	3.72	5.06	24.24	38.90	280.0
34200	0.71	3.86	5.20	25.02	40.16	279.3
35100	0.73	3.52	5.30	25.87	41.52	279.3

36000	0.75	2.90	5.42	26.62	42.72	280.0
36900	0.76	2.97	5.52	27.23	43.70	280.7
37800	0.78	2.28	5.62	28.03	44.99	281.4
38700	0.80	2.14	5.76	28.93	46.44	280.7
39600	0.82	1.79	5.88	29.75	47.75	280.7
40500	0.84	1.45	6.02	30.54	49.02	280.7
41400	0.86	0.69	6.14	31.36	50.33	280.7
42300	0.88	0.90	6.26	32.14	51.59	280.7
43200	0.90	0.83	6.38	32.95	52.88	280.7
44100	0.91	0.34	6.50	33.80	54.25	280.7
45000	0.93	0.28	6.60	34.58	55.50	282.1
45900	0.95	0.21	6.72	35.31	56.67	280.7
46800	0.97	0.28	6.88	36.04	57.84	280.7
47700	0.99	0.28	7.06	36.73	58.96	281.4
48600	1.01	0.21	7.20	37.23	59.75	281.4
49500	1.03	0.34	7.72	37.73	60.56	278.6
50400	1.04	0.21	8.12	38.05	61.07	277.9
51300	1.06	0.14	8.46	38.29	61.46	277.9
52200	1.08	0.14	8.82	38.51	61.81	278.6
53100	1.10	0.21	9.20	38.71	62.14	279.3
54000	1.12	0.07	9.54	38.89	62.42	277.2
54900	1.14	0.00	9.82	39.02	62.62	277.9
55800	1.16	0.28	10.06	39.07	62.71	277.9
56700	1.18	-0.07	10.06	39.11	62.77	282.1
57600	1.19	0.00	10.94	39.32	63.10	277.9
58500	1.21	-0.28	11.26	39.40	63.23	277.9
59400	1.23	1.03	11.54	39.46	63.34	279.3
60300	1.25	1.72	12.16	39.53	63.44	277.2
61200	1.27	2.97	12.48	39.58	63.53	277.9
62100	1.29	2.90	13.06	39.61	63.58	276.6
63000	1.31	2.14	13.26	39.65	63.64	278.6
63900	1.32	2.28	13.48	39.68	63.69	280.7
64800	1.34	2.90	14.00	39.73	63.77	279.3
65700	1.36	1.30	14.22	39.76	63.82	280.7
66600	1.38	1.40	14.62	39.79	63.86	281.4
67500	1.40	1.50	15.02	39.79	63.86	281.4
68400	1.42	1.50	15.42	39.82	63.91	281.4
69300	1.44	1.70	16.02	39.87	64.00	280.0
70200	1.46	1.50	16.26	39.87	63.99	281.4
71100	1.47	1.60	16.78	39.90	64.04	280.0
72000	1.49	1.60	17.08	39.92	64.07	281.4
72900	1.51	1.60	17.56	39.93	64.09	280.7
73800	1.53	1.50	18.06	39.95	64.11	280.7
74700	1.55	1.60	18.36	39.96	64.14	281.4
75600	1.57	1.60	18.90	40.00	64.21	280.7
76500	1.59	1.50	19.16	40.02	64.23	281.4
77400	1.60	1.60	19.54	40.01	64.22	280.7
78300	1.62	1.60	19.96	40.01	64.21	281.4

TABLE 9: SLIM TUBE DISPLACEMENT WITH CARBON DIOXIDE AT 310 BARS						
TIME	PV	DP	GAS PRODUCED	OIL PRODUCED	LIVE OIL PRODUCED	INJECTION PRESSURE
sec		bars	M ³	gm	ml	bars
0	0.00		0.10	0.00		309.66
900	0.02	7.17	0.34	0.01	0.01	310.34
1800	0.04	8.97	0.49	0.07	0.12	312.41
2700	0.06	10.90	0.65	0.19	0.31	313.79
3600	0.07	17.66	0.81	0.45	0.71	313.79
4500	0.09	7.45	0.97	1.02	1.64	313.10
5400	0.11	18.21	1.12	0.79	1.27	313.79
6300	0.13	37.00	1.28	0.47	0.76	313.79
7200	0.15	33.66	1.44	1.58	2.54	313.79
8100	0.17	50.34	1.59	2.83	4.54	312.41
9000	0.19	31.45	1.75	3.96	6.35	311.03
9900	0.21	26.76	1.91	4.75	7.62	311.03
10800	0.22	28.28	2.06	5.25	8.42	311.72
11700	0.24	39.72	2.22	6.48	10.40	309.66
12600	0.26	7.72	2.38	7.53	12.08	308.97
13500	0.28	31.03	2.54	7.85	12.59	309.66
14400	0.30	26.76	2.70	9.00	14.44	308.28
15300	0.32	7.86	2.84	9.97	16.00	308.28
16200	0.34	4.55	3.18	10.13	16.25	310.34
17100	0.35	23.45	3.34	10.13	16.26	311.03
18000	0.37	22.34	3.44	10.90	17.49	310.34
18900	0.39	29.79	3.66	11.91	19.11	309.66
19800	0.41	7.86	3.76	12.96	20.79	310.34
20700	0.43	15.86	3.76	13.47	21.61	311.72
21600	0.45	17.24	3.78	14.22	22.81	311.72
22500	0.47	21.93	3.98	15.18	24.36	313.10
23400	0.49	21.10	4.16	16.33	26.19	311.03
24300	0.50	21.52	4.24	17.65	28.32	310.34
25200	0.52	17.10	4.30	19.02	30.52	308.97
26100	0.54	16.14	4.40	20.17	32.36	308.97
27000	0.56	12.14	4.52	21.14	33.92	308.97
27900	0.58	10.07	4.66	22.09	35.45	309.66
28800	0.60	9.38	4.84	23.06	36.99	308.28
29700	0.62	8.28	5.04	23.91	38.35	308.28
30600	0.63	10.21	5.22	25.17	40.38	306.90
31500	0.65	6.90	5.38	26.28	42.16	306.21
32400	0.67	7.45	5.62	27.22	43.67	306.21
33300	0.69	7.17	5.74	28.21	45.26	304.83
34200	0.71	7.31	5.92	29.31	47.02	304.14
35100	0.73	3.86	6.06	30.35	48.70	303.45
36000	0.75	3.45	6.22	30.91	49.59	304.14

36900	0.76	3.03	6.40	31.45	50.45	306.21
37800	0.78	3.31	6.62	32.07	51.45	306.21
38700	0.80	2.90	6.76	32.65	52.38	306.90
39600	0.82	3.31	6.88	33.13	53.16	306.90
40500	0.84	2.90	6.98	33.69	54.06	307.59
41400	0.86	5.93	7.04	34.44	55.25	306.90
42300	0.88	4.41	7.14	35.63	57.17	304.83
43200	0.90	5.00	7.26	37.37	59.95	296.55
44100	0.91	2.76	7.63	38.25	61.37	294.48
45000	0.93	0.83	8.01	38.42	61.63	296.55
45900	0.95	0.83	8.38	38.41	61.63	297.93
46800	0.97	0.83	8.75	38.36	61.55	300.69
47700	0.99	1.10	9.13	38.51	61.78	302.07
48600	1.01	1.10	9.50	38.48	61.73	303.45
49500	1.03	1.10	9.87	38.52	61.81	305.52
50400	1.04	1.10	10.25	38.57	61.89	306.90
51300	1.06	1.10	10.62	38.58	61.91	308.97
52200	1.08	3.03	10.99	38.54	61.83	309.66
53100	1.10	1.24	11.37	38.76	62.19	311.03
54000	1.12	1.38	11.74	38.71	62.11	304.14
54900	1.14	1.10	12.11	39.30	63.06	304.14
55800	1.16	1.10	12.49	39.40	63.22	305.52
56700	1.18	0.97	12.86	39.42	63.25	308.28
57600	1.19	1.10	13.23	39.46	63.31	308.97
58500	1.21	1.10	13.61	39.50	63.38	311.03
59400	1.23	0.83	13.98	39.58	63.50	311.72
60300	1.25	1.38	14.35	39.68	63.67	313.10
61200	1.27	4.83	14.73	39.50	63.38	312.41
62100	1.29	4.41	15.10	39.54	63.43	310.34
63000	1.31	3.72	15.47	39.74	63.76	309.66
63900	1.32	1.10	15.85	39.93	64.07	308.97
64800	1.34	1.52	16.22	40.03	64.23	311.03
65700	1.36	1.38	16.59	40.12	64.37	312.41
66600	1.38	5.93	16.97	39.85	63.94	311.03
67500	1.40	1.10	17.34	40.13	64.39	311.72
68400	1.42	1.66	17.71	40.07	64.29	313.10
69300	1.44	3.17	18.09	40.04	64.24	312.41
70200	1.46	3.59	18.46	40.23	64.54	310.34
71100	1.47	1.10	18.90	40.23	64.55	311.03
72000	1.49	1.24	18.92	40.26	64.59	314.48
72900	1.51	1.38	19.60	40.29	64.65	312.41

TABLE 10: SLIM TUBE DISPLACEMENT WITH CARBON DIOXIDE AT 368 BARS

TIME	PV	DP	GAS	OIL PRODUCED	LIVE OIL PRODUCED	INJ PRESSURE
sec		bars	(M ³)	gm	ml	bars
0	0.00	0.41	0.00	0.00	0.00	386.21
900	0.02	55.31	0.38	1.05	1.66	386.21
1800	0.04	8.97	0.54	0.86	1.37	387.59
2700	0.06	60.00	0.92	0.83	1.32	388.28
3600	0.07	6.76	1.02	0.63	1.00	391.03
4500	0.09	26.21	1.06	0.60	0.96	391.03
5400	0.11	21.38	1.28	0.50	0.79	391.03
6300	0.13	37.00	1.44	1.48	2.35	384.83
7200	0.15	60.55	1.60	3.93	6.25	381.38
8100	0.17	39.72	1.76	5.45	8.65	379.31
9000	0.19	31.45	1.92	6.67	10.59	378.62
9900	0.21	29.66	2.08	7.71	12.26	377.93
10800	0.22	26.62	2.24	8.73	13.87	377.24
11700	0.24	24.41	2.40	9.76	15.51	376.55
12600	0.26	20.97	2.80	10.70	17.00	376.55
13500	0.28	18.48	3.06	11.55	18.35	375.86
14400	0.30	17.10	3.28	12.29	19.52	375.86
15300	0.32	16.55	3.44	13.01	20.67	376.55
16200	0.34	15.45	3.56	13.70	21.77	376.55
17100	0.35	15.03	3.72	14.43	22.93	377.24
18000	0.37	15.31	3.82	15.12	24.03	377.24
18900	0.39	12.69	3.94	15.78	25.07	377.93
19800	0.41	10.90	4.04	16.38	26.02	377.93
20700	0.43	12.14	4.14	16.84	26.76	380.00
21600	0.45	17.38	4.24	17.54	27.87	378.62
22500	0.47	19.31	4.32	18.61	29.57	377.93
23400	0.49	19.31	4.40	19.85	31.54	376.55
24300	0.50	16.69	4.46	21.12	33.55	375.86
25200	0.52	8.97	4.48	22.42	35.62	375.86
26100	0.54	7.31	4.52	23.10	36.70	375.86
27000	0.56	8.69	4.62	23.70	37.65	376.55
27900	0.58	7.45	4.74	24.24	38.51	377.24
28800	0.60	7.17	4.92	24.80	39.41	377.93
29700	0.62	5.79	5.08	25.39	40.35	378.62
30600	0.63	6.21	5.28	25.85	41.07	378.62
31500	0.65	5.66	5.34	26.50	42.10	379.31
32400	0.67	4.83	5.40	27.12	43.10	380.00
33300	0.69	4.00	5.44	27.81	44.18	380.00
34200	0.71	4.83	5.48	28.32	45.00	380.69
35100	0.73	4.14	5.54	29.10	46.23	380.69
36000	0.75	4.28	5.58	29.78	47.32	380.69

36900	0.76	4.41	5.66	30.53	48.51	382.07
37800	0.78	4.41	5.74	31.40	49.89	382.76
38700	0.80	6.76	5.78	32.35	51.40	382.07
39600	0.82	7.31	5.86	33.75	53.62	380.69
40500	0.84	7.45	5.94	35.32	56.12	377.24
41400	0.86	13.38	6.02	37.21	59.13	372.41
42300	0.88	3.86	6.10	38.76	61.59	366.90
43200	0.90	3.03	6.22	39.00	61.96	368.97
44100	0.91	3.03	6.36	39.19	62.26	369.66
45000	0.93	3.17	6.62	39.39	62.58	369.66
45900	0.95	4.00	7.06	39.61	62.93	369.66
46800	0.97	1.79	8.02	39.90	63.40	368.97
47700	0.99	3.45	9.38	40.01	63.58	368.97
48600	1.01	1.10	9.58	40.14	63.78	368.28
49500	1.03	1.24	9.82	40.27	63.98	371.03
50400	1.04	1.24	10.18	40.32	64.07	368.97
51300	1.06	2.48	10.74	40.41	64.20	371.03
52200	1.08	2.21	11.42	40.46	64.29	372.41
53100	1.10	1.79	11.88	40.50	64.35	373.79
54000	1.12	1.93	12.40	40.53	64.39	374.48
54900	1.14	4.28	12.40	40.49	64.34	374.48
55800	1.16	3.17	13.40	40.49	64.33	373.79
56700	1.18	1.79	13.44	40.63	64.55	375.86
57600	1.19	1.66	13.48	40.62	64.53	376.55
58500	1.21	1.93	13.58	40.66	64.61	378.62
59400	1.23	3.03	13.68	40.65	64.59	380.69
60300	1.25	3.31	14.10	40.63	64.56	380.69
61200	1.27	5.24	14.98	40.60	64.51	380.00
62100	1.29	3.31	15.02	40.67	64.62	379.31
63000	1.31	1.52	15.04	40.76	64.76	380.69
63900	1.32	3.03	15.24	40.78	64.79	382.07
64800	1.34	4.97	15.36	40.75	64.75	380.00
65700	1.36	4.28	15.62	40.74	64.73	379.31
66600	1.38	3.72	16.30	40.80	64.82	378.62
67500	1.40	1.52	16.98	40.92	65.02	380.69
68400	1.42	1.79	17.26	40.96	65.09	382.76

Fig. 11: Plot of Oil Recovery at 1.0 PV Injected Versus Pressure

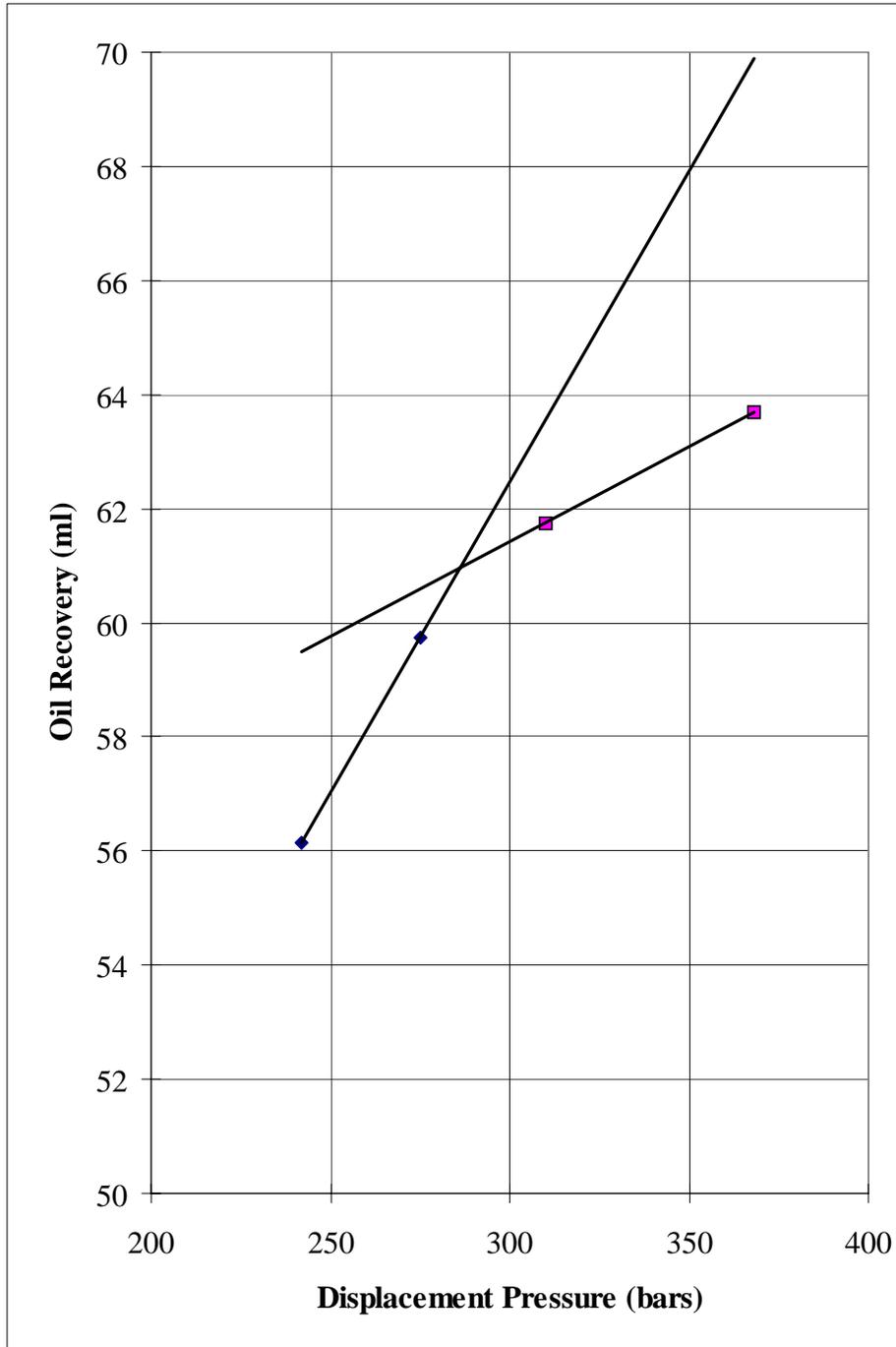


Fig 12: Plot of Oil Recovery at Gas Breakthrough versus Pressure

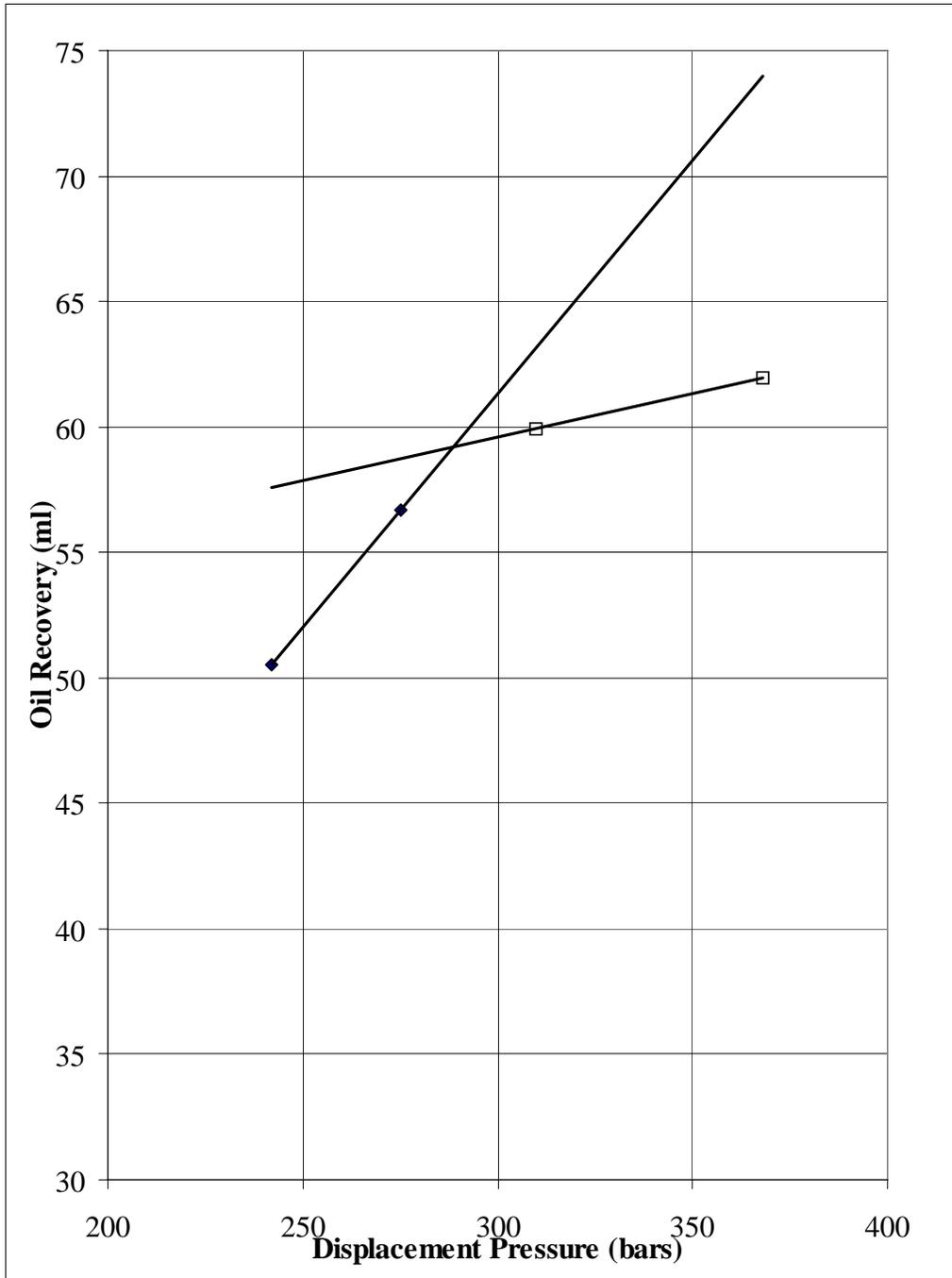


Fig. 13: Slim tube Test with Carbon Dioxide at 242 bars

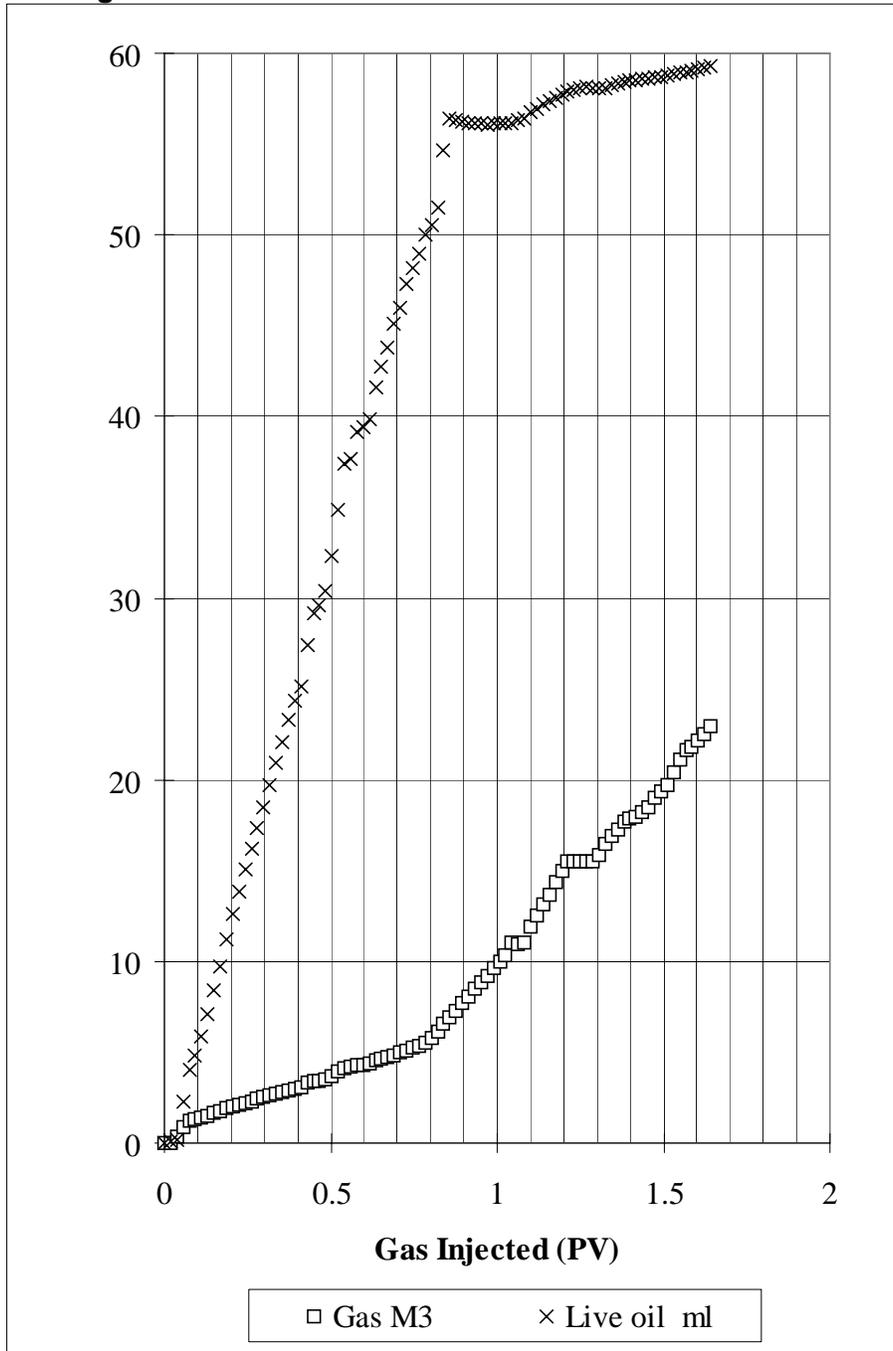


Fig. 14: Slim Tube Test with Carbon Dioxide at 242 bars

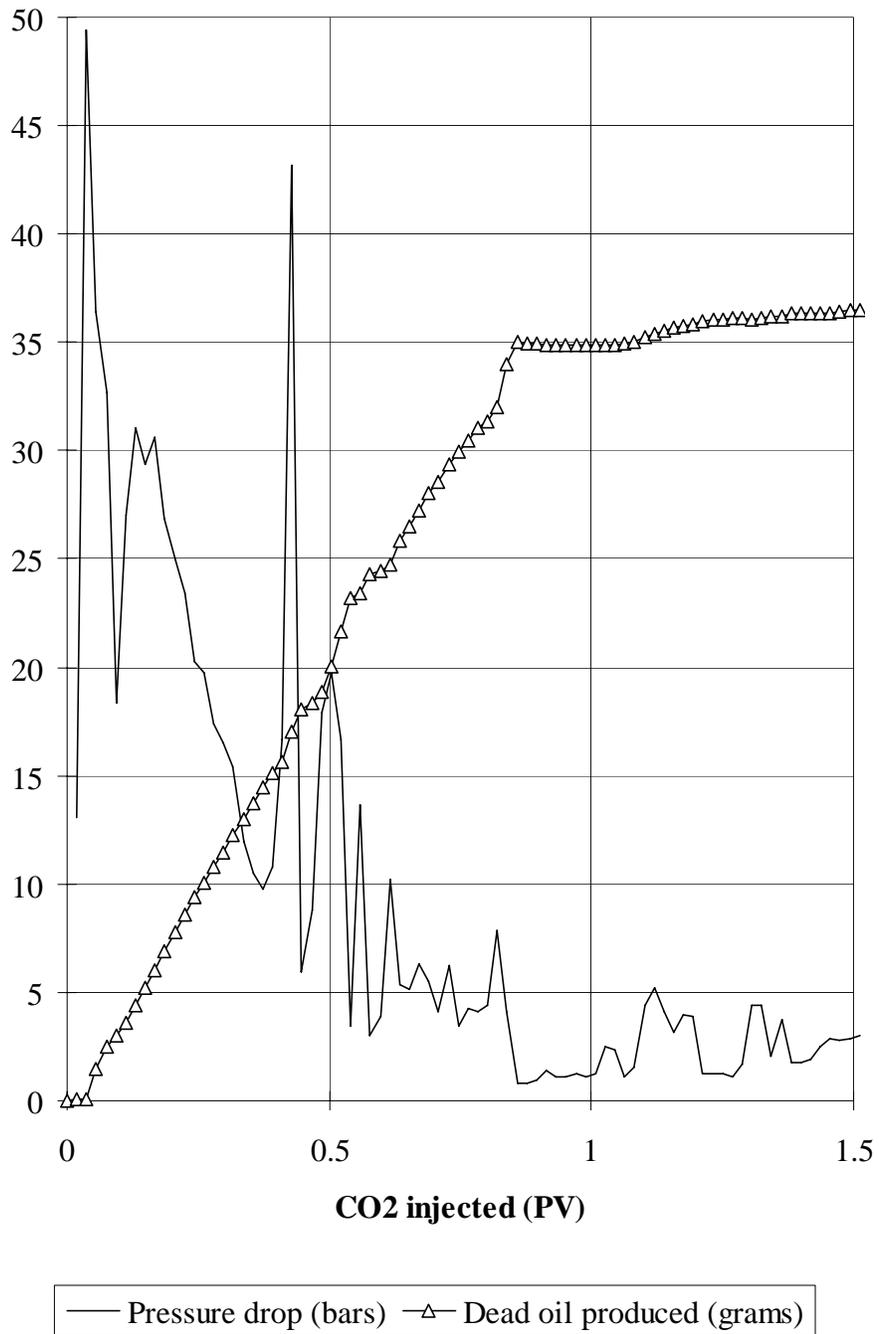


Fig. 15: Slim Tube Test with Carbon Dioxide at 275 bars

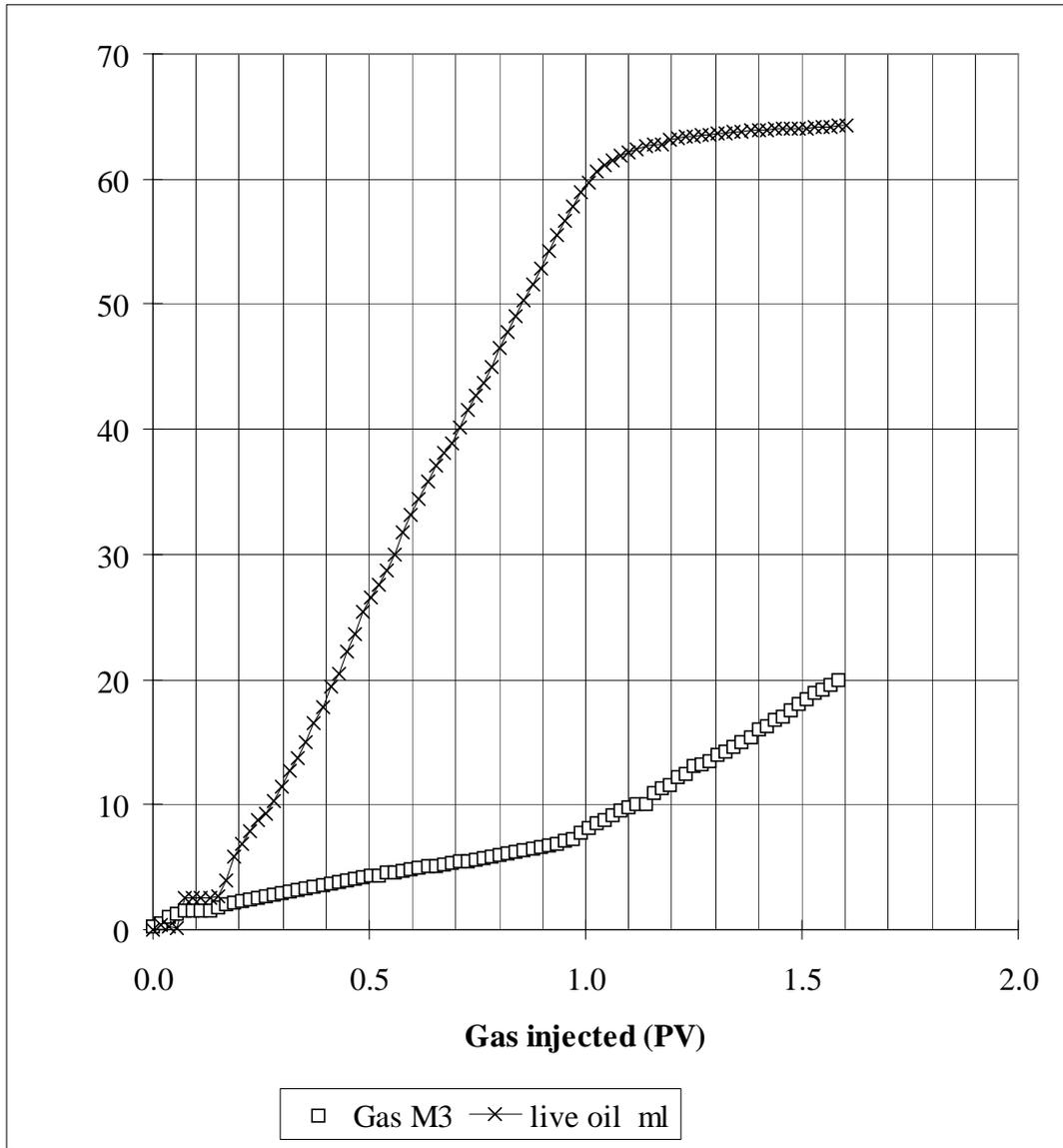


Fig. 16: Slim Tube Test with Carbon Dioxide at 275 bars

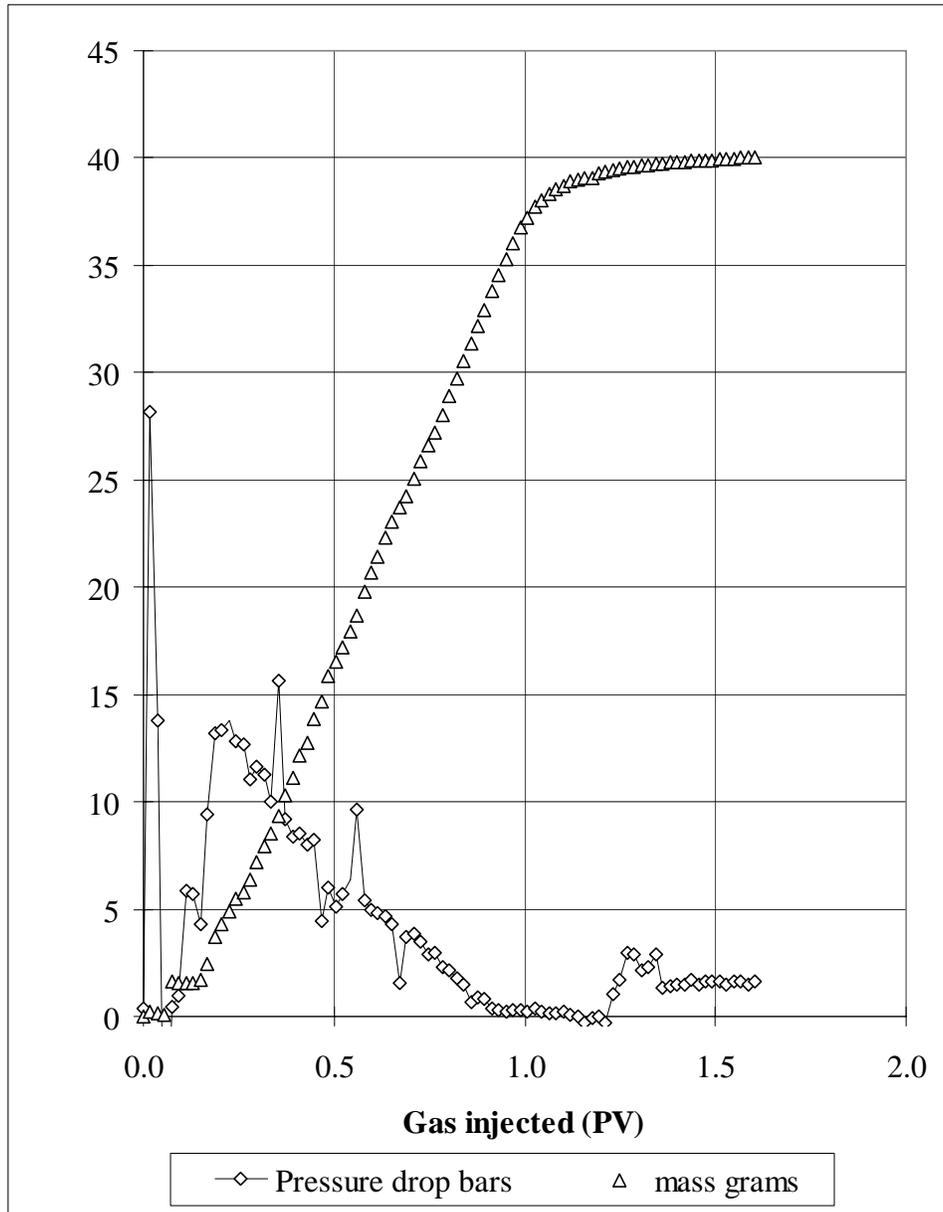


Fig. 17: Slim Tube Test with Carbon Dioxide at 310 bars

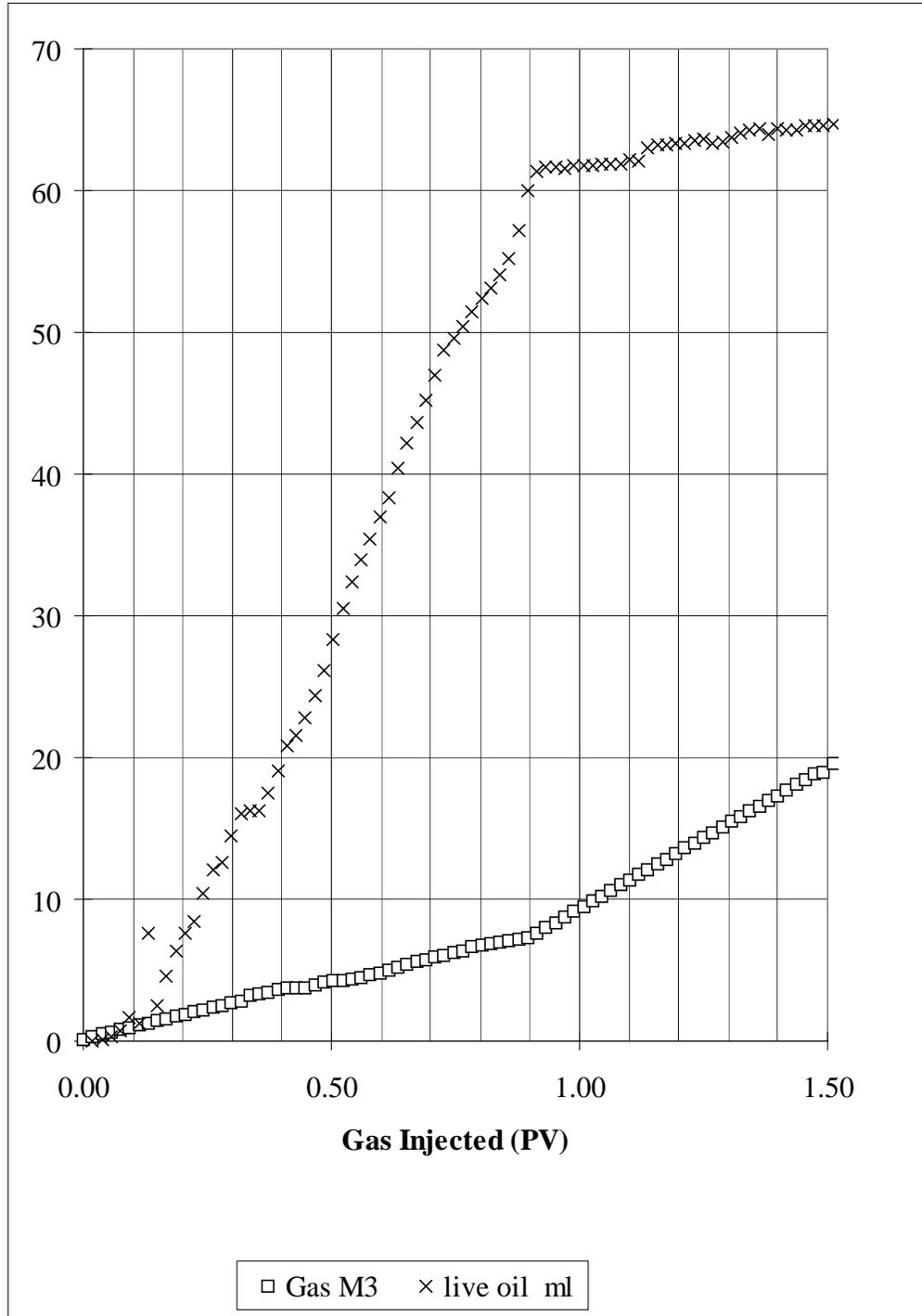


Fig. 18: Slim Tube Test with Carbon Dioxide at 310 bars

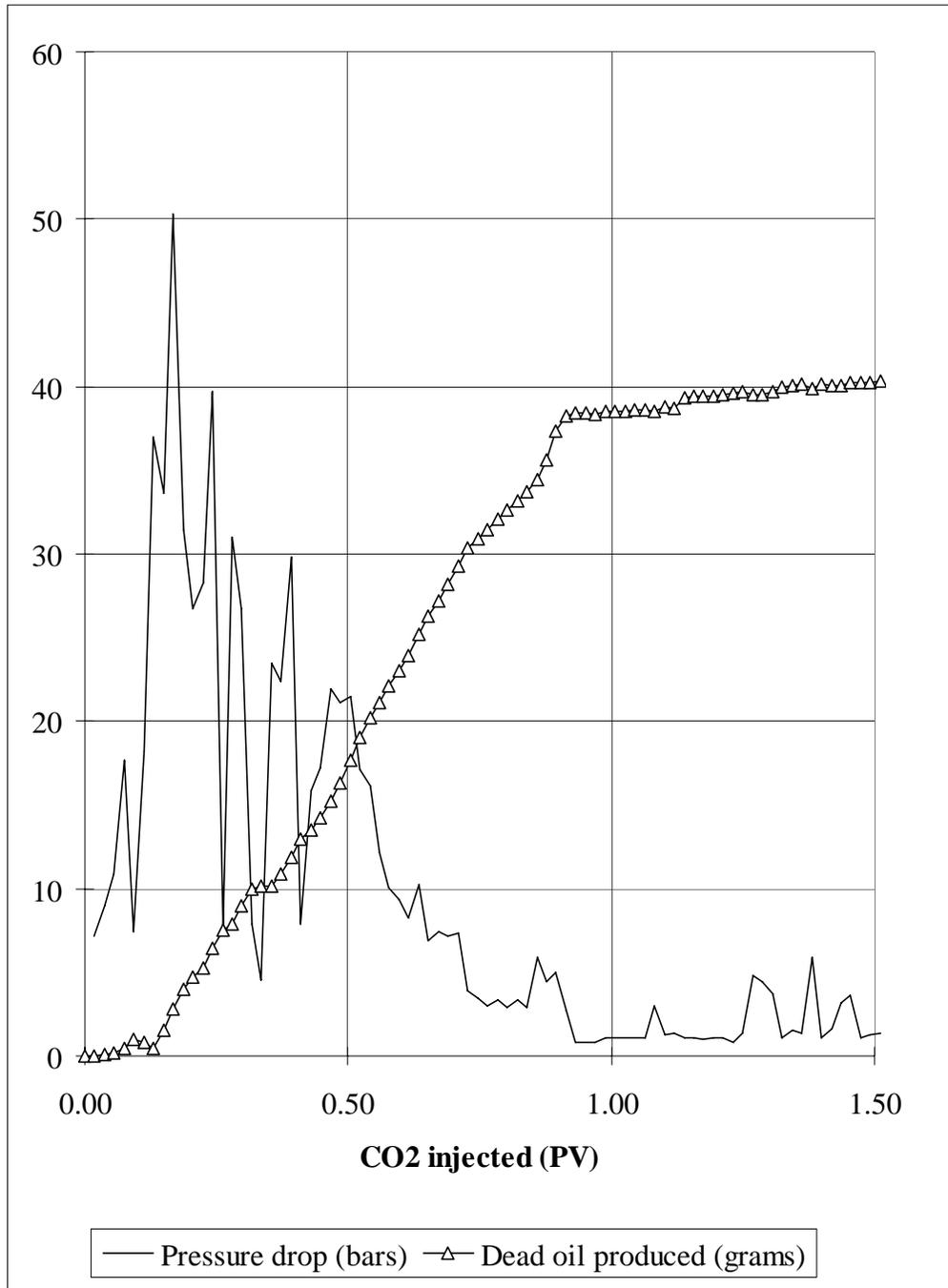


Fig. 19: Slim Tube Test with Carbon Dioxide at 368 bars

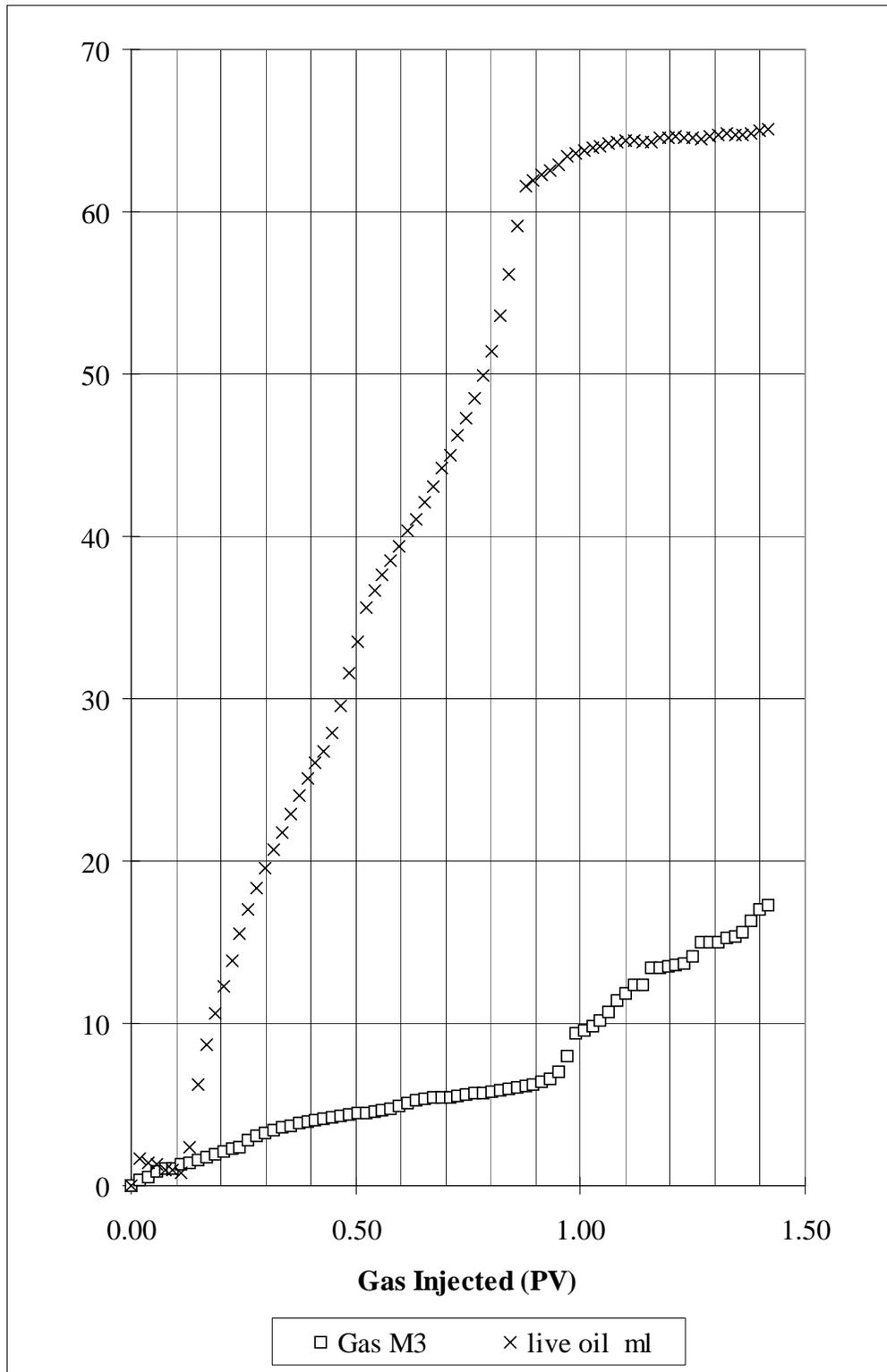


Fig. 20: Slim tube Test with Carbon Dioxide at 368 bars

