

PhazeComp-Generated L^AT_EX Report Template

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1. Executive Summary

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2. Introduction

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4. Conclusions

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Nomenclature

References

Tables

Table 1: Component Properties for Characterization “Measured”

Component	MW	Full Name
CO2	44.010	“Carbon Dioxide”
N2	28.014	“Nitrogen”
C1	16.043	“Methane”
C2	30.070	“Ethane”
C3	44.097	“Propane”
i-C4	58.123	“Isobutane”
n-C4	58.123	“Butane”
i-C5	72.150	“Isopentane”
n-C5	72.150	“Pentane”
c-C5	70.134	“Cyclopentane”
n-C6	86.177	“Hexane”
mc-C5	84.161	“Methylcyclopentane”
Benzene	78.114	“Benzene”
c-C6	84.161	“Cyclohexane”
n-C7	100.204	“Heptane”
mc-C6	98.188	“Methylcyclohexane”
Toluene	92.141	“Toluene”
n-C8	114.231	“Octane”
p-Xylene	106.167	“p-Xylene”
o-Xylene	106.167	“o-Xylene”
n-C9	128.258	“Nonane”
124tm-Ben	120.194	“1,2,4-Trimethylbenzene”
C10s	134.000	“C10s”
C11	147.000	“C11”
C12	161.000	“C12”
C13	175.000	“C13”
C14	190.000	“C14”
C15	206.000	“C15”
C16	222.000	“C16”
C17	237.000	“C17”
C18	251.000	“C18”
C19	263.000	“C19”
C20	275.000	“C20”
C21	291.000	“C21”
C22	305.000	“C22”
C23	318.000	“C23”
C24	331.000	“C24”
C25	345.000	“C25”
C26	359.000	“C26”
C27	374.000	“C27”
C28	388.000	“C28”
C29	402.000	“C29”
C30+	580.000	“C30+”

Table 2: Essential Properties for Characterization “SCN”

Component	MW	Tc (R)	Pc (psia)	AF	VTran	ZcVis
CO2	44.010	547.42	1069.51	0.22500	0.00191	0.27433
N2	28.014	227.16	492.84	0.03700	−0.16758	0.29178
C1	16.043	343.01	667.03	0.01100	−0.14996	0.28620
C2	30.070	549.58	706.62	0.09900	−0.06280	0.27924
C3	44.097	665.69	616.12	0.15200	−0.06381	0.27630
i-C4	58.123	734.13	527.94	0.18600	−0.06197	0.28199
n-C4	58.123	765.22	550.56	0.20000	−0.05393	0.27385
i-C5	72.150	828.70	490.37	0.22900	−0.05646	0.27231
n-C5	72.150	845.46	488.78	0.25200	−0.02928	0.26837
C6	82.009	925.61	500.51	0.23281	−0.00855	0.27134
C7	95.170	990.97	466.67	0.26628	0.00514	0.26674
C8	108.734	1047.69	431.89	0.30368	0.01889	0.26210
C9	121.696	1097.56	399.41	0.34274	0.04010	0.25740
C10	134.600	1142.38	370.98	0.38187	0.05990	0.25357
C11	147.425	1183.01	346.14	0.42081	0.07829	0.25031
C12	160.163	1220.10	324.38	0.45946	0.09531	0.24745
C13	172.807	1254.16	305.22	0.49421	0.11100	0.24492
C14	185.356	1285.59	288.28	0.53021	0.12542	0.24267
C15	197.805	1314.73	273.23	0.56549	0.13864	0.24066
C16	210.154	1341.86	259.81	0.60005	0.15072	0.23887
C17	222.402	1367.19	247.79	0.63387	0.16173	0.23729
C18	234.547	1390.94	236.99	0.66695	0.17175	0.23589
C19	246.590	1413.27	227.24	0.69929	0.18085	0.23467
C20	258.531	1434.32	218.41	0.73090	0.18911	0.23360
C21	270.372	1454.21	210.39	0.76178	0.19657	0.23269
C22	282.113	1473.06	203.08	0.79195	0.20332	0.23192
C23	293.756	1490.96	196.39	0.82141	0.20940	0.23128
C24	305.303	1507.99	190.27	0.85018	0.21488	0.23075
C25	316.755	1524.23	184.64	0.87826	0.21979	0.23034
C26	328.114	1539.73	179.45	0.90568	0.22419	0.23002
C27	339.383	1554.56	174.65	0.93244	0.22812	0.22980
C28	350.564	1568.77	170.20	0.95856	0.23162	0.22967
C29	361.658	1582.41	166.08	0.98405	0.23472	0.22962
C30+	580.000	1786.31	118.55	1.40211	0.24829	0.23910

Table 3: Additional Properties for Characterization “SCN”

Component	LMW	Tb (F)	SG	Zc	ZcVis	Visc (cp)
CO2		−126.879	0.76193	0.27433	0.27433	
N2		−320.625	0.28339	0.29178	0.29178	
C1		−258.868	0.14609	0.28620	0.28620	
C2		−127.690	0.32976	0.27924	0.27924	
C3		−43.989	0.50977	0.27630	0.27630	
i-C4		11.015	0.57043	0.28199	0.28199	
n-C4		31.071	0.59055	0.27385	0.27385	
i-C5		82.423	0.62952	0.27231	0.27231	
n-C5		97.136	0.63585	0.26837	0.26837	
C6	75.540	145.280	0.70924	0.27134	0.27134	
C7	88.407	198.373	0.74361	0.26674	0.26674	
C8	101.890	247.846	0.76693	0.26209	0.26210	0.22401
C9	115.196	293.818	0.78380	0.25784	0.25740	0.27401
C10	128.136	336.644	0.79748	0.25404	0.25357	0.33113
C11	141.002	376.660	0.80902	0.25059	0.25031	0.39585
C12	153.783	414.155	0.81900	0.24739	0.24745	0.46867
C13	166.474	449.373	0.82781	0.24437	0.24492	0.55006
C14	179.069	482.527	0.83570	0.24149	0.24267	0.64044
C15	191.567	513.801	0.84285	0.23872	0.24066	0.74023
C16	203.965	543.354	0.84937	0.23604	0.23887	0.84981
C17	216.262	571.331	0.85538	0.23344	0.23729	0.96955
C18	228.457	597.857	0.86095	0.23090	0.23589	1.09979
C19	240.551	623.047	0.86614	0.22843	0.23467	1.24084
C20	252.543	647.003	0.87099	0.22602	0.23360	1.39298
C21	264.433	669.818	0.87555	0.22367	0.23269	1.55650
C22	276.224	691.573	0.87985	0.22139	0.23192	1.73165
C23	287.916	712.347	0.88392	0.21916	0.23128	1.91866
C24	299.510	732.206	0.88778	0.21699	0.23075	2.11774
C25	311.009	751.214	0.89145	0.21488	0.23034	2.32912
C26	322.415	769.429	0.89495	0.21283	0.23002	2.55296
C27	333.729	786.901	0.89829	0.21083	0.22980	2.78946
C28	344.954	803.681	0.90149	0.20889	0.22967	3.03877
C29	356.091	819.811	0.90456	0.20700	0.22962	3.30107
C30+	367.144	1061.154	0.95071	0.17718	0.23910	12.13317

Table 4: Mixture “GC1” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.012683	0.005647
N2	0.001733	0.000491
C1	0.437542	0.071011
C2	0.054106	0.016459
C3	0.053313	0.023783
i-C4	0.009168	0.005391
n-C4	0.027261	0.016029
i-C5	0.011100	0.008102
n-C5	0.015977	0.011661
C6	0.023045	0.019119
C7	0.034461	0.033178
C8	0.035585	0.039143
C9	0.027983	0.034450
C10	0.025136	0.034226
C11	0.020168	0.030079
C12	0.017623	0.028554
C13	0.017716	0.030970
C14	0.016727	0.031365
C15	0.015280	0.030577
C16	0.013400	0.028489
C17	0.012484	0.028087
C18	0.011449	0.027166
C19	0.009942	0.024802
C20	0.007854	0.020541
C21	0.006501	0.017782
C22	0.005981	0.017069
C23	0.005574	0.016565
C24	0.004845	0.014964
C25	0.004461	0.014294
C26	0.004166	0.013827
C27	0.004164	0.014295
C28	0.003883	0.013771
C29	0.003433	0.012562
C30+	0.045258	0.265551
MW		98.85

Table 5: Mixture “GC2” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.012600	0.006209
N2	0.001900	0.000596
C1	0.445000	0.079941
C2	0.056000	0.018856
C3	0.053100	0.026220
i-C4	0.009500	0.006183
n-C4	0.027900	0.018158
i-C5	0.011800	0.009533
n-C5	0.017800	0.014381
C6	0.032400	0.029753
C7	0.033900	0.036126
C8	0.041300	0.050285
C9	0.028600	0.038973
C10	0.024800	0.037378
C11	0.020200	0.033346
C12	0.018000	0.032282
C13	0.017300	0.033476
C14	0.013800	0.028642
C15	0.013600	0.030123
C16	0.011700	0.027533
C17	0.009300	0.023160
C18	0.009200	0.024162
C19	0.008500	0.023470
C20	0.006900	0.019975
C21	0.005400	0.016349
C22	0.006200	0.019586
C23	0.005100	0.016776
C24	0.005700	0.019486
C25	0.004900	0.017380
C26	0.004700	0.017268
C27	0.004500	0.017101
C28	0.004700	0.018450
C29	0.004100	0.016604
C30+	0.029600	0.192240
MW		89.31

Table 6: Mixture “GC3” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.015753	0.027339
N2	0.002520	0.002784
C1	0.700221	0.442985
C2	0.088217	0.104605
C3	0.085539	0.148744
i-C4	0.015123	0.034662
n-C4	0.044581	0.102180
i-C5	0.019376	0.055128
n-C5	0.028670	0.081572
MW		25.36

Table 7: Mixture “Solvent” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.015300	0.026326
N2	0.003300	0.003614
C1	0.685500	0.429961
C2	0.108200	0.127203
C3	0.094400	0.162749
i-C4	0.000000	0.000000
n-C4	0.044500	0.101122
i-C5	0.000000	0.000000
n-C5	0.019300	0.054441
C6	0.029500	0.094584
MW		25.58

Table 8: Essential Properties for Characterization “13-Component”

Component	MW	Tc (R)	Pc (psia)	AF	VTran	ZcVis
CO2	44.010	547.42	1069.51	0.22500	0.00191	0.27433
C1N2	16.094	342.48	666.29	0.01110	−0.15003	0.28622
C2	30.070	549.58	706.62	0.09900	−0.06280	0.27924
C3	44.097	665.69	616.12	0.15200	−0.06381	0.27630
C4	58.123	757.33	544.82	0.19644	−0.05597	0.27592
C5	72.150	838.87	489.45	0.24286	−0.03996	0.26992
C6-C7	88.738	959.66	482.36	0.25014	−0.00108	0.26883
C8-C9	114.038	1047.18	446.47	0.29339	−0.06336	0.28129
C10-C13	151.788	1149.12	390.33	0.36733	−0.10576	0.29490
C14-C19	212.240	1270.85	326.90	0.48011	−0.14670	0.31411
C20-C29	306.193	1426.84	249.89	0.66872	−0.09879	0.31490
C30-C44	435.151	1574.24	194.80	0.89686	−0.07736	0.32351
C45+	737.351	1784.78	144.77	1.27407	−0.15125	0.37004

Table 9: Binary Interaction Parameters for Characterization “13-Component”

	CO2	C1N2	C2	C3
C1N2	0.10500			
C2	0.13000	0.00170		
C3	0.12500	0.00559	0.00095	
C4	0.12000	0.01020	0.00304	0.00059
C5	0.11500	0.01452	0.00535	0.00180
C6-C7	0.11500	0.01836	0.00759	0.00319
C8-C9	0.11500	0.02496	0.01166	0.00601
C10-C13	0.11500	0.03482	0.01813	0.01092
C14-C19	0.11500	0.04831	0.02746	0.01849
C20-C29	0.11500	0.06379	0.03860	0.02797
C30-C44	0.11500	0.07756	0.04879	0.03692
C45+	0.11500	0.09308	0.06051	0.04743

Table 9: Binary Interaction Parameters for Characterization “13-Component” (cont.)

	C4	C5	C6-C7	C8-C9
C5	0.00033			
C6-C7	0.00104	0.00020		
C8-C9	0.00285	0.00124	0.00045	
C10-C13	0.00648	0.00390	0.00235	0.00075
C14-C19	0.01261	0.00891	0.00648	0.00353
C20-C29	0.02070	0.01594	0.01265	0.00839
C30-C44	0.02859	0.02300	0.01906	0.01378
C45+	0.03808	0.03167	0.02708	0.02078

Table 9: Binary Interaction Parameters for Characterization “13-Component” (cont.)

	C10-C13	C14-C19	C20-C29	C30-C44
C14-C19	0.00104			
C20-C29	0.00417	0.00105		
C30-C44	0.00820	0.00344	0.01762	
C45+	0.01383	0.02431	0.03674	0.05155

Table 10: Additional Properties for Characterization “13-Component”

Component	LMW	Tb (F)	SG	Zc	ZcVis	Visc (cp)
CO2		−126.879	0.76193	0.27433	0.27433	
C1N2		−259.146	0.14662	0.28622	0.28622	
C2		−127.690	0.32976	0.27924	0.27924	
C3		−43.989	0.50977	0.27630	0.27630	
C4	51.110	25.973	0.58564	0.27592	0.27592	
C5	63.908	91.325	0.63338	0.26992	0.26992	
C6-C7	75.540	172.819	0.72783	0.26883	0.26883	
C8-C9	101.890	243.509	0.77421	0.26022	0.28129	0.24320
C10-C13	128.136	335.182	0.81267	0.24920	0.29490	0.41750
C14-C19	179.069	453.198	0.85067	0.23517	0.31411	0.86320
C20-C29	252.543	620.657	0.88845	0.21626	0.31490	2.11113
C30-C44	367.144	787.995	0.92269	0.19548	0.32351	5.44552
C45+	524.117	1028.420	0.97421	0.16209	0.37004	24.12613

Table 11: Mixture “GC1” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.012683	0.005654
C1N2	0.439275	0.071616
C2	0.054106	0.016481
C3	0.053313	0.023815
C4	0.036429	0.021449
C5	0.027076	0.019790
C6-C7	0.057505	0.051693
C8-C9	0.063568	0.073434
C10-C13	0.080643	0.123998
C14-C19	0.079283	0.170459
C20-C29	0.050862	0.157762
C30-C44	0.024240	0.106853
C45+	0.021018	0.156995
MW		98.72

Table 12: Mixture “GC2” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.012149	0.005016
C1N2	0.430895	0.065061
C2	0.053994	0.015232
C3	0.051198	0.021181
C4	0.036061	0.019664
C5	0.028540	0.019319
C6-C7	0.063926	0.053220
C8-C9	0.067397	0.072106
C10-C13	0.077424	0.110255
C14-C19	0.063733	0.126904
C20-C29	0.050331	0.144582
C30-C44	0.034468	0.140714
C45+	0.029886	0.206745
MW		106.59

Table 13: Mixture “GC3” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.010000	0.004314
C1N2	0.446100	0.070375
C2	0.056000	0.016506
C3	0.054300	0.023471
C4	0.037900	0.021593
C5	0.030500	0.021571
C6-C7	0.060299	0.052450
C8-C9	0.063573	0.071064
C10-C13	0.073032	0.108661
C14-C19	0.060117	0.125069
C20-C29	0.047475	0.142491
C30-C44	0.032512	0.138679
C45+	0.028191	0.203756
MW		102.02

Table 14: Mixture “Oil1” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.012644	0.005617
C1N2	0.437913	0.071140
C2	0.053945	0.016374
C3	0.053178	0.023671
C4	0.036381	0.021345
C5	0.027103	0.019739
C6-C7	0.057716	0.051697
C8-C9	0.063855	0.073504
C10-C13	0.081025	0.124143
C14-C19	0.079661	0.170661
C20-C29	0.051104	0.157949
C30-C44	0.024356	0.106980
C45+	0.021118	0.157181
MW		99.07

Table 15: Mixture “Oil2” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.012315	0.005166
C1N2	0.436896	0.067020
C2	0.054713	0.015682
C3	0.051777	0.021763
C4	0.036271	0.020094
C5	0.028414	0.019540
C6-C7	0.062913	0.053213
C8-C9	0.066085	0.071831
C10-C13	0.075848	0.109734
C14-C19	0.062429	0.126292
C20-C29	0.049301	0.143884
C30-C44	0.033762	0.140035
C45+	0.029275	0.205748
MW		104.92

Table 16: Mixture “Oil3” Compositions

Component	Mole Fractions	Mass Fractions
CO2	0.010083	0.004405
C1N2	0.452516	0.072291
C2	0.056206	0.016777
C3	0.054014	0.023643
C4	0.037491	0.021630
C5	0.030087	0.021548
C6-C7	0.059399	0.052321
C8-C9	0.062601	0.070863
C10-C13	0.071906	0.108341
C14-C19	0.059189	0.124697
C20-C29	0.046742	0.142067
C30-C44	0.032010	0.138267
C45+	0.027756	0.203150
MW		100.74

Table 17: Single-Stage Separation of Oil Sample 1

Temp (C)	Pres (bar)	GOR (sm3/m3)		Liq Den (g/cm3)	
		Expt	Calc	Expt	Calc
15.000	1.0000	145.20	145.20	0.85300	0.85686
RMS % Err			0.00		0.45
Ave % Bias			-0.00		0.45

Table 18: Single-Stage Separation of Oil Sample 2

Temp (C)	Pres (barg)	GOR (sm3/m3)	
		Expt	Calc
15.000	0.0	137.00	137.00
RMS % Err			0.00
Ave % Bias			0.00

Table 19: Separator Test 1 for Oil Sample 3

Temp (C)	Pres (barg)	Removed (sm3)		GOR (sm3/m3)		Cum GOR (sm3/m3)	
		Expt	Calc	Expt	Calc	Expt	Calc
38.000	40.000	101.84	101.73	92.660	92.160	92.66	92.16
38.000	12.500	120.01	118.57	17.180	15.853	113.43	111.58
15.000	0.000	136.58	132.85	16.570	14.181	136.58	131.91
RMS % Err			1.69		1.73		2.13
Ave % Bias			-1.29		-1.52		-1.71

Table 19: Separator Test 1 for Oil Sample 3 (cont.)

Temp (C)	Pres (barg)	Tot Vol 2 (m3)		Liq Den (kg/m3)		Gas Grav		Liq MW	
		Expt	Calc	Expt	Calc	Expt	Calc	Expt	Calc
38.000	40.000	1.0990	1.1038		814.43	0.6660	0.6699		164.75
38.000	12.500	1.0580	1.0626		830.96	0.7510	0.7753		186.08
15.000	0.000	1.0000	1.0072	843.80	855.06	1.1480	1.2480	209.99	207.90
RMS % Err			0.52		1.33		5.18		1.00
Ave % Bias			0.50		1.33		3.72		-1.00

Table 19: Separator Test 1 for Oil Sample 3 (cont.)

Pres (barg)	C1N2 y (%)		C2 y (%)		C3 y (%)		C4+ y (%)	
	Expt	Calc	Expt	Calc	Expt	Calc	Expt	Calc
40.000	86.510	86.165	6.620	6.934	3.380	3.580	1.660	1.784
12.500	76.070	73.783	11.730	12.583	6.850	7.692	3.090	3.634
0.000	36.410	30.150	23.380	21.922	24.580	28.239	13.350	17.314
RMS % Err		4.45		4.24		8.83		17.31
Ave % Bias		-3.43		-0.42		6.38		11.56

Table 19: Separator Test 1 for Oil Sample 3 (cont.)

Pres (barg)	C4+ y (%)		C4+ x (%)	
	Expt	Calc	Expt	Calc
40.000	1.660	1.784		74.932
12.500	3.090	3.634		85.615
0.000	13.350	17.314	94.980	95.556
RMS % Err		17.31		0.61
Ave % Bias		11.56		0.61

Table 20: Separator Test 2 for Oil Sample 3

Temp (C)	Pres (barg)	Removed (sm3)		GOR (sm3/m3)		Cum GOR (sm3/m3)	
		Expt	Calc	Expt	Calc	Expt	Calc
38.000	40.000	101.54	102.23	92.160	92.160	92.16	92.16
15.000	0.000	137.33	136.94	35.790	34.758	137.33	137.14
RMS % Err			0.41		0.79		0.10
Ave % Bias			0.11		-0.56		-0.07

Table 20: Separator Test 2 for Oil Sample 3 (cont.)

Temp (C)	Pres (barg)	Tot Vol 2 (m3)		Liq Den (kg/m3)		Gas Grav		Liq MW	
		Expt	Calc	Expt	Calc	Expt	Calc	Expt	Calc
38.000	40.000	1.1020	1.1093		814.43	0.6640	0.6699		164.75
15.000	0.000	1.0000	0.9986	848.10	858.41	0.9500	1.0900	214.79	213.31
RMS % Err			0.48		1.22		10.43		0.69
Ave % Bias			0.27		1.22		7.68		-0.69

Table 20: Separator Test 2 for Oil Sample 3 (cont.)

Pres (barg)	C1N2 y (%)		C2 y (%)		C3 y (%)		C4+ y (%)	
	Expt	Calc	Expt	Calc	Expt	Calc	Expt	Calc
40.000	86.710	86.165	6.640	6.934	3.380	3.580	1.630	1.784
0.000	55.970	48.242	17.490	15.808	16.150	19.010	8.150	14.818
RMS % Err		6.32		6.90		12.55		57.87
Ave % Bias		-4.77		-3.97		9.47		41.85

Table 20: Separator Test 2 for Oil Sample 3 (cont.)

Pres (barg)	C4+ y (%)		C4+ x (%)	
	Expt	Calc	Expt	Calc
40.000	1.630	1.784		74.932
0.000	8.150	14.818	95.720	96.848
RMS % Err			57.87	1.18
Ave % Bias			41.85	1.18

Table 21: Separator Test 3 for Oil Sample 3

Temp (C)	Pres (barg)	Removed (sm3)		GOR (sm3/m3)		Cum GOR (sm3/m3)	
		Expt	Calc	Expt	Calc	Expt	Calc
74.000	9.6800	140.91	141.64	132.730	134.158	132.73	134.16
74.000	3.2200	144.78	145.26	3.680	3.462	137.62	139.04
15.000	0.0000	149.12	146.31	4.340	1.034	149.12	144.64
RMS % Err			1.14		1.57		1.90
Ave % Bias			−0.36		−0.53		−0.36

Table 21: Separator Test 3 for Oil Sample 3 (cont.)

Temp (C)	Pres (barg)	Tot Vol 2 (m3)		Liq Den (kg/m3)		Gas Grav	
		Expt	Calc	Expt	Calc	Expt	Calc
74.000	9.6800	1.0620	1.0558		831.92	0.9200	0.8295
74.000	3.2200	1.0520	1.0447		836.06		1.1082
15.000	0.0000	1.0000	1.0115	853.40	862.19		1.0490
RMS % Err			0.81		1.03		9.84
Ave % Bias			−0.06		1.03		−9.84

Figures

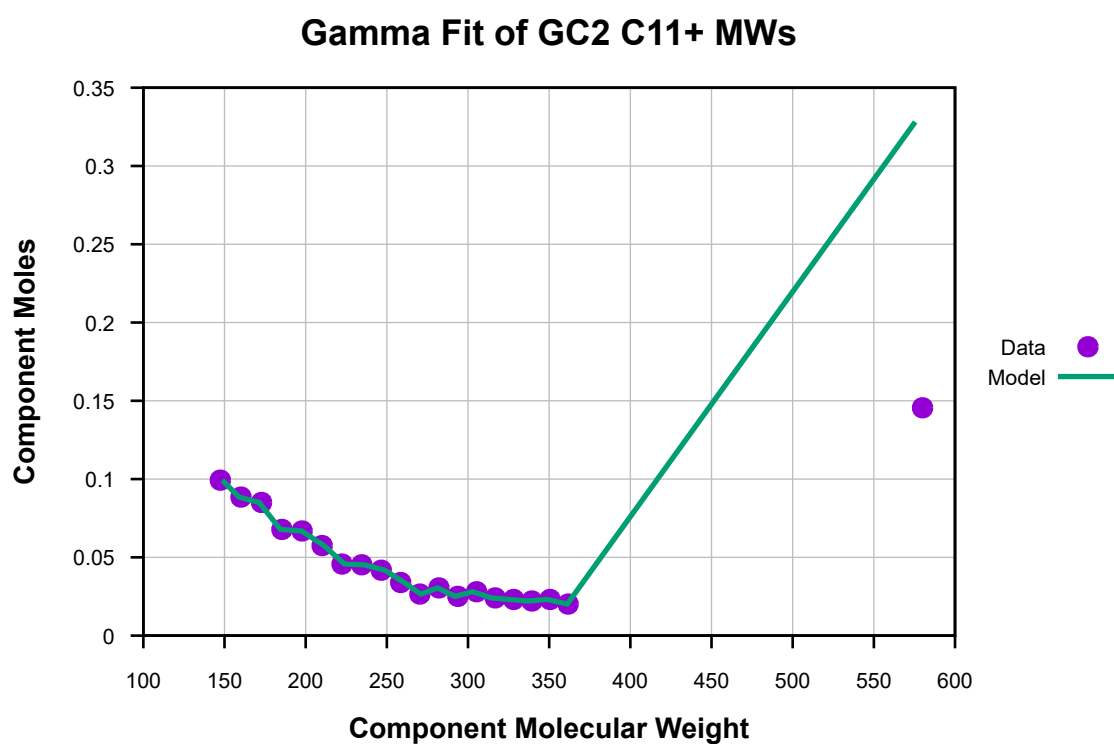


Figure 1: Molar Gamma Fit of GC2 C11+ MWs. Gamma Shape = 0.76918, Average = 321.10, Bound = 145.04, Origin = 145.04.

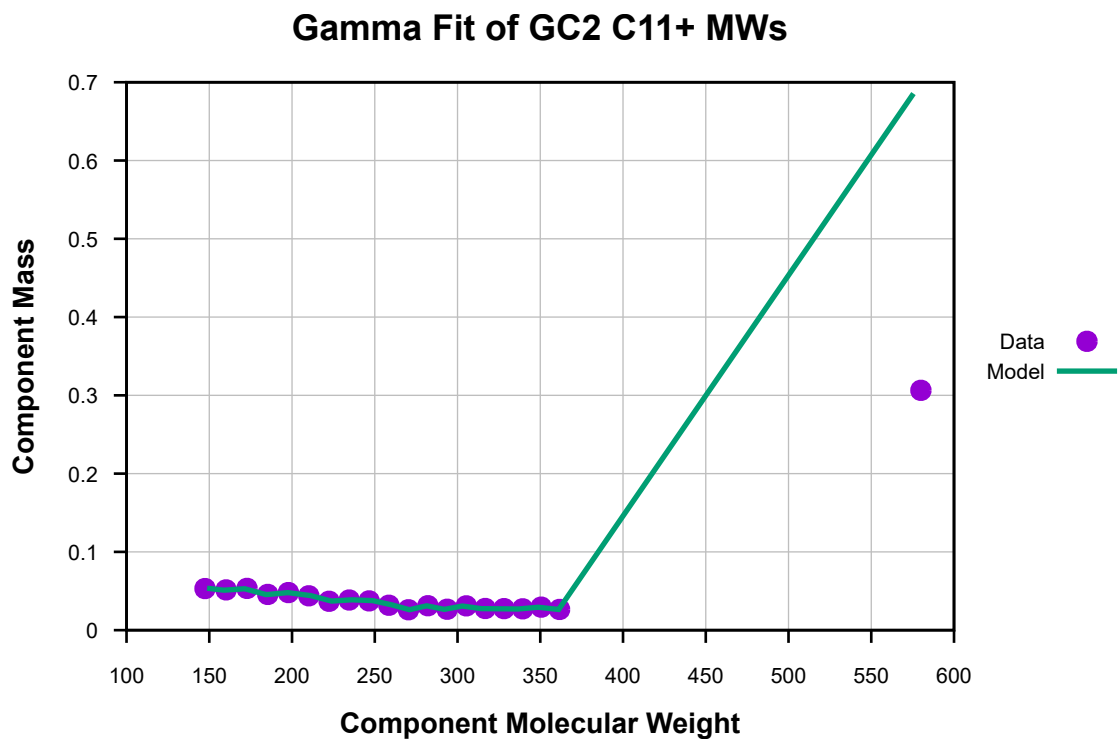


Figure 2: Mass Gamma Fit of GC2 C11+ MWs. Gamma Shape = 0.76918, Average = 321.10, Bound = 145.04, Origin = 145.04.

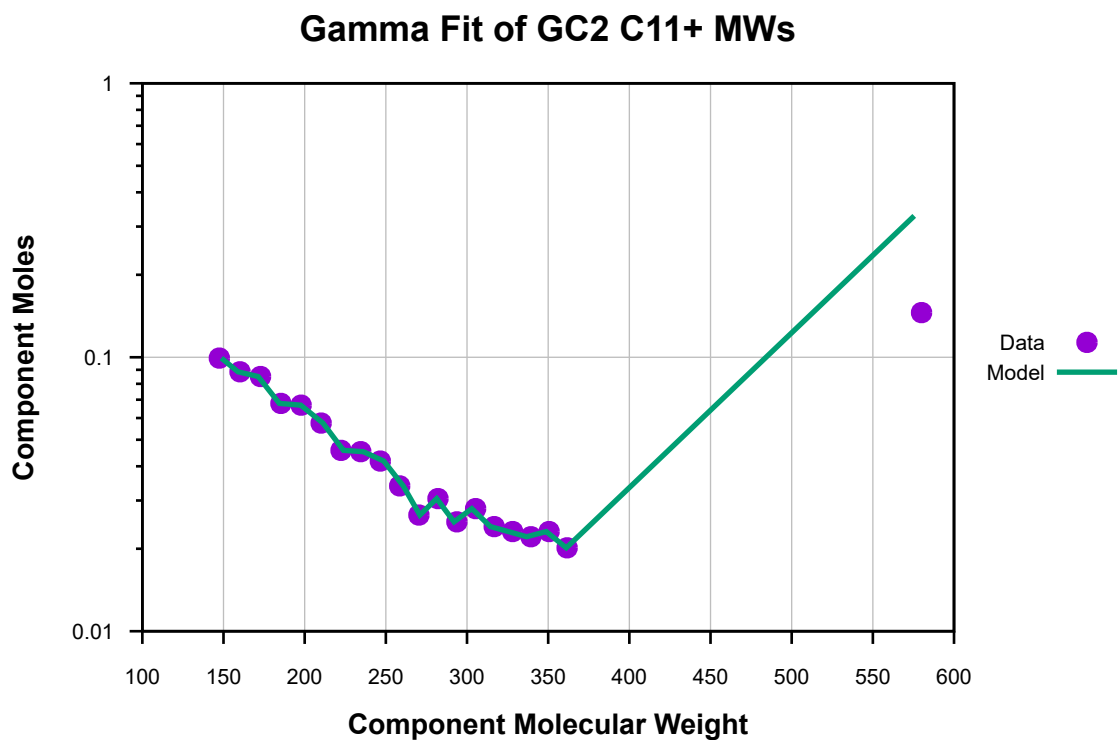


Figure 3: Molar Gamma Fit of GC2 C11+ MWs. Gamma Shape = 0.76918, Average = 321.10, Bound = 145.04, Origin = 145.04.

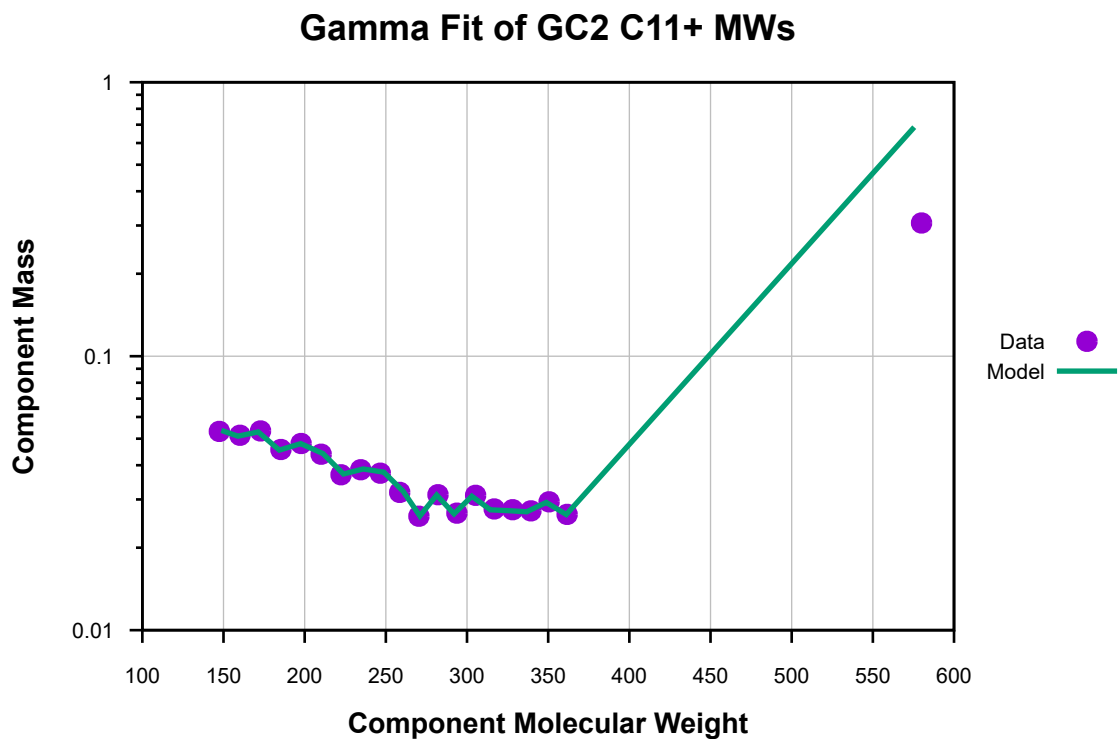


Figure 4: Mass Gamma Fit of GC2 C11+ MWs. Gamma Shape = 0.76918, Average = 321.10, Bound = 145.04, Origin = 145.04.

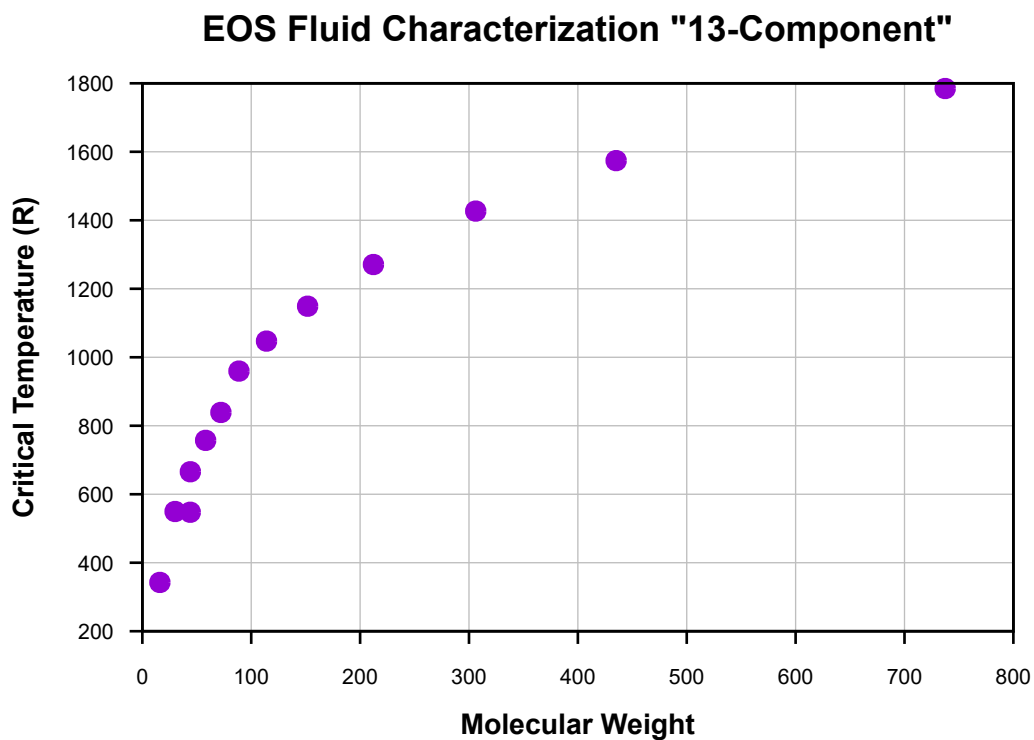


Figure 5: Critical Temperature vs. Molecular Weight for EOS Fluid Characterization "13-Component."

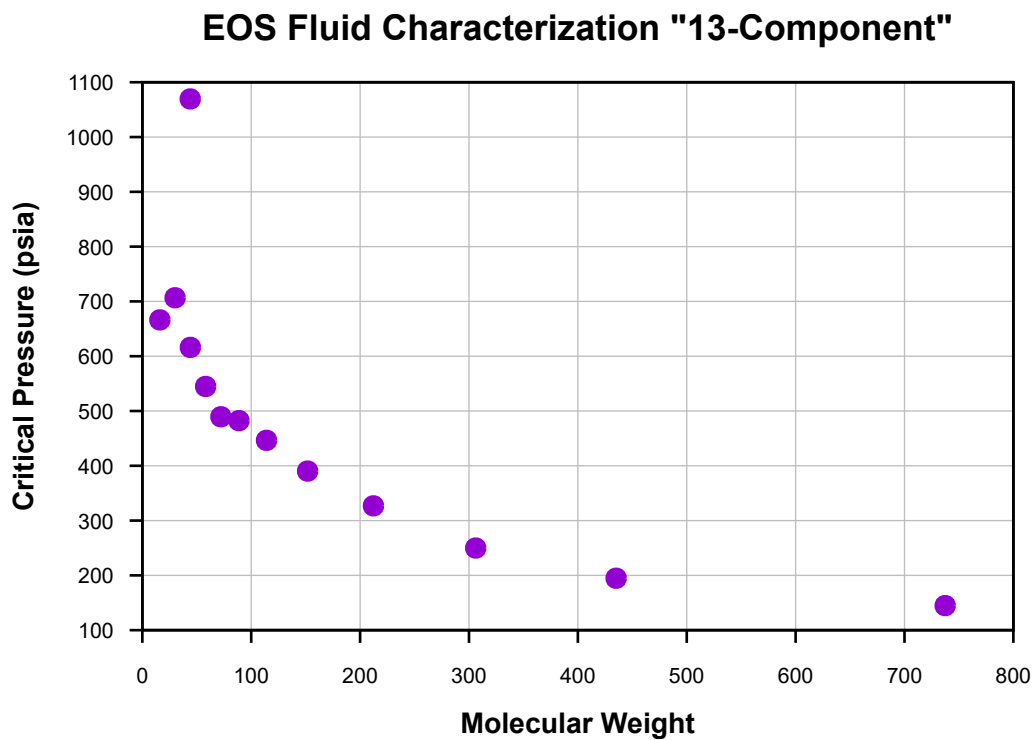


Figure 6: Critical Pressure vs. Molecular Weight for EOS Fluid Characterization "13-Component."

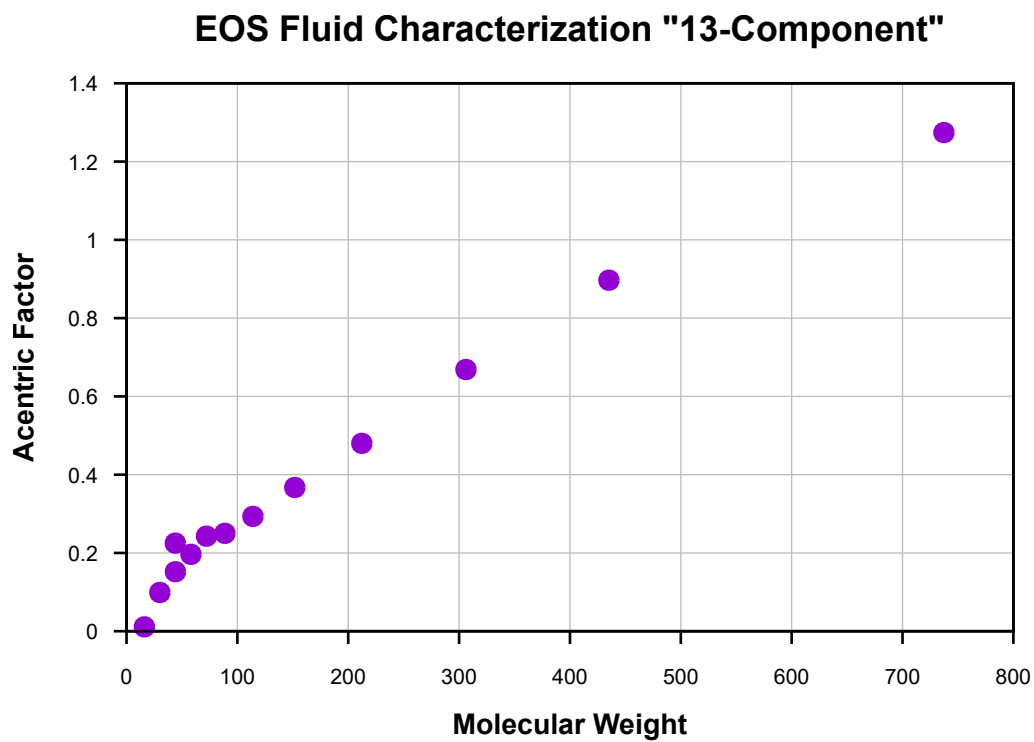


Figure 7: Acentric Factor vs. Molecular Weight for EOS Fluid Characterization "13-Component."

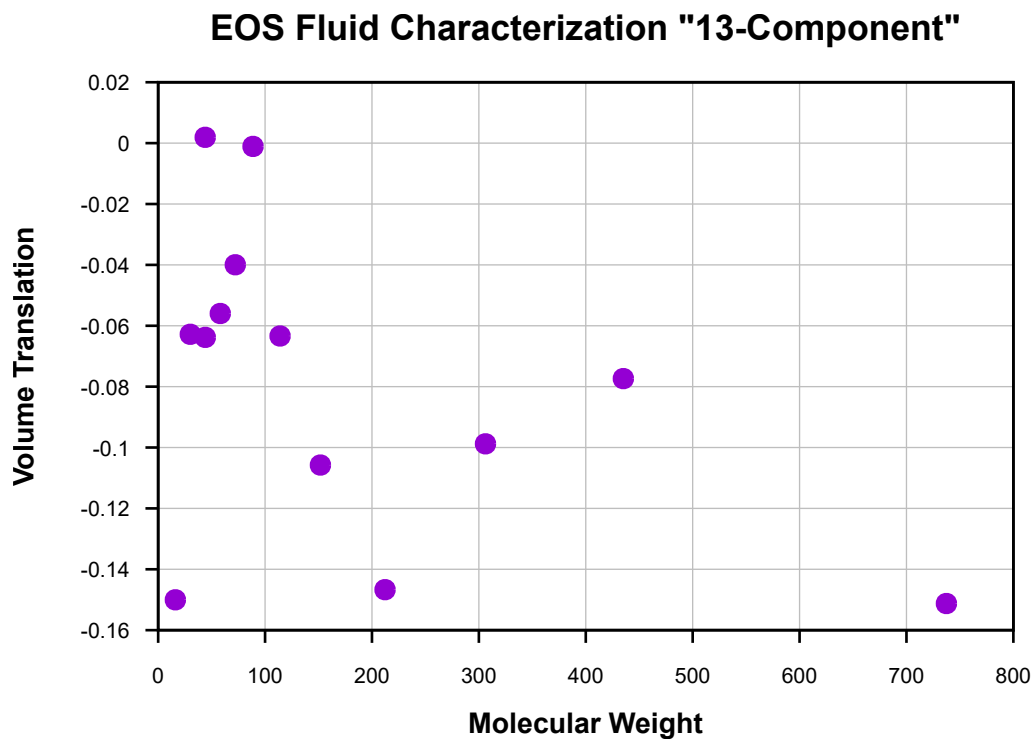


Figure 8: Volume Translation vs. Molecular Weight for EOS Fluid Characterization "13-Component."

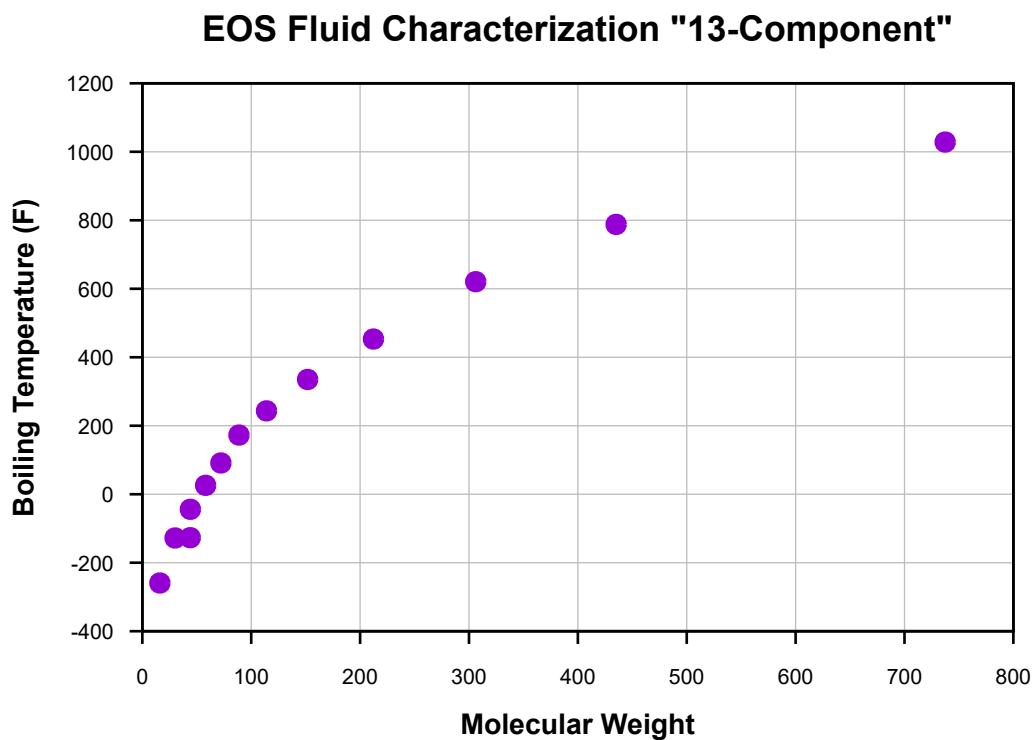


Figure 9: Boiling Temperature vs. Molecular Weight for EOS Fluid Characterization "13-Component."

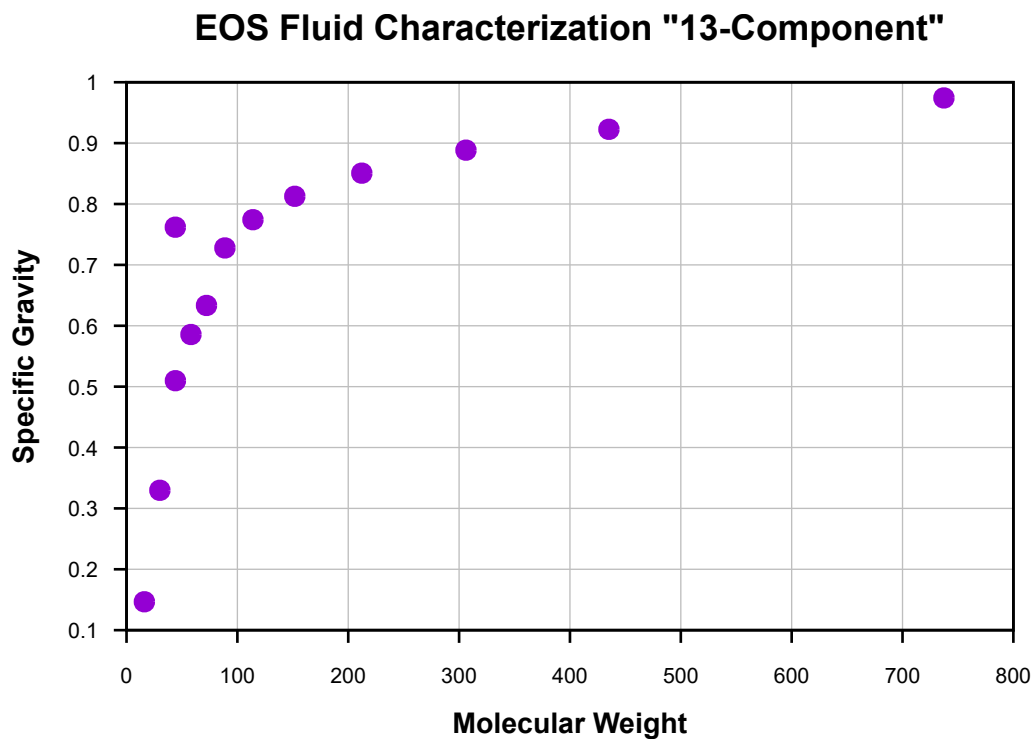


Figure 10: Specific Gravity vs. Molecular Weight for EOS Fluid Characterization "13-Component."

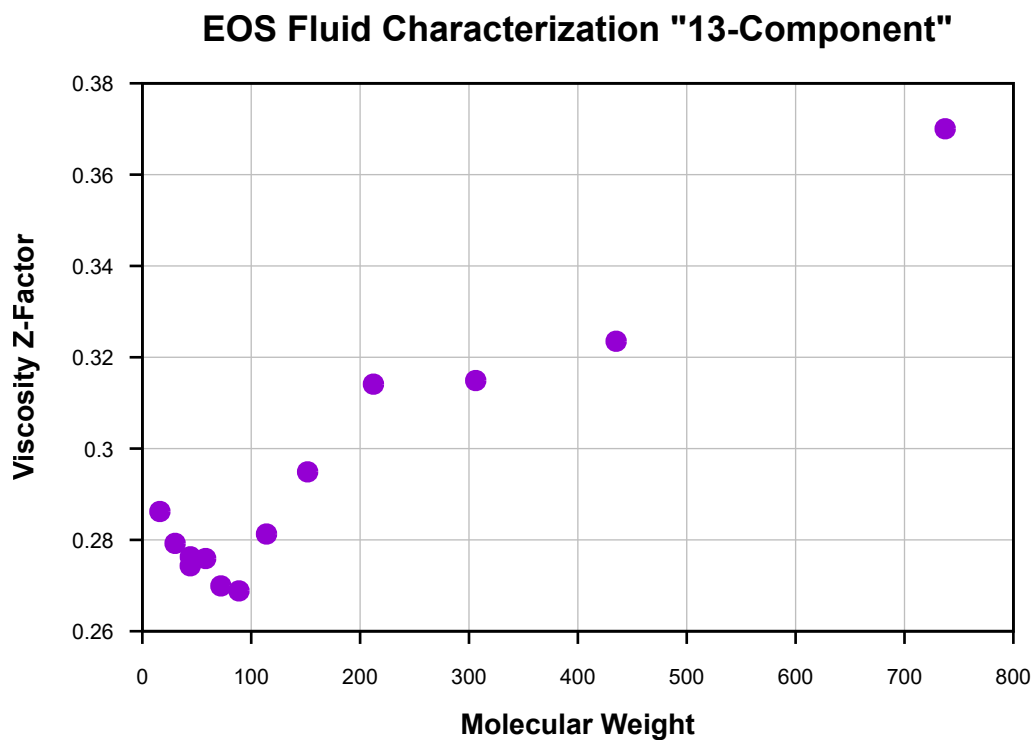


Figure 11: Viscosity Z-Factor vs. Molecular Weight for EOS Fluid Characterization "13-Component."

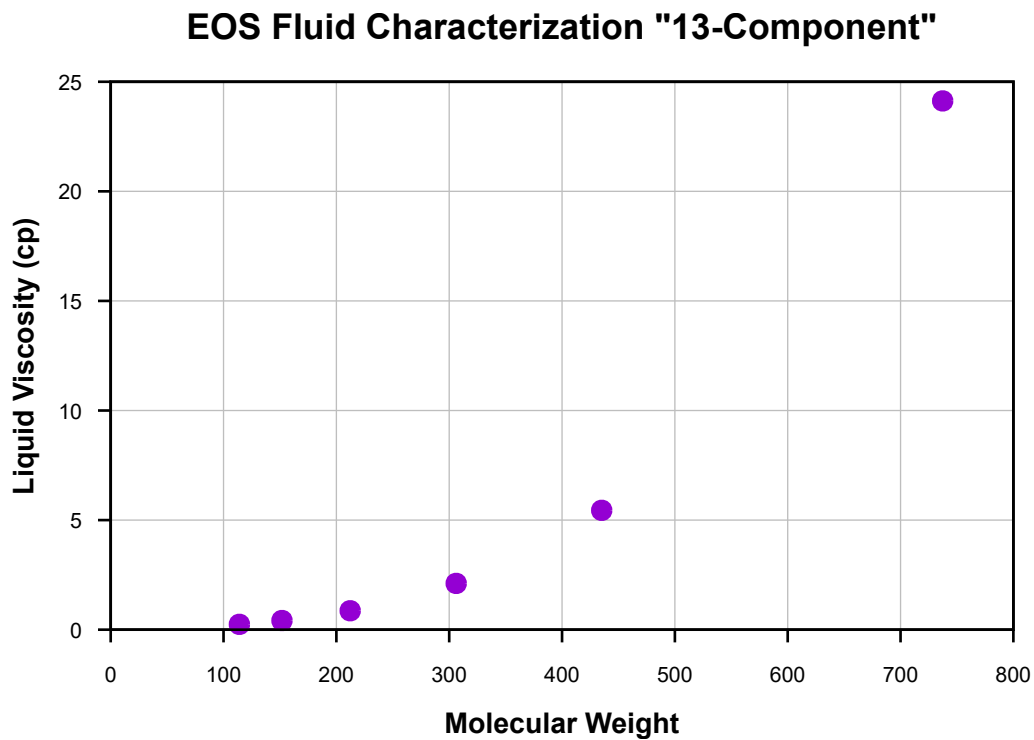


Figure 12: Liquid Viscosity vs. Molecular Weight for EOS Fluid Characterization "13-Component."

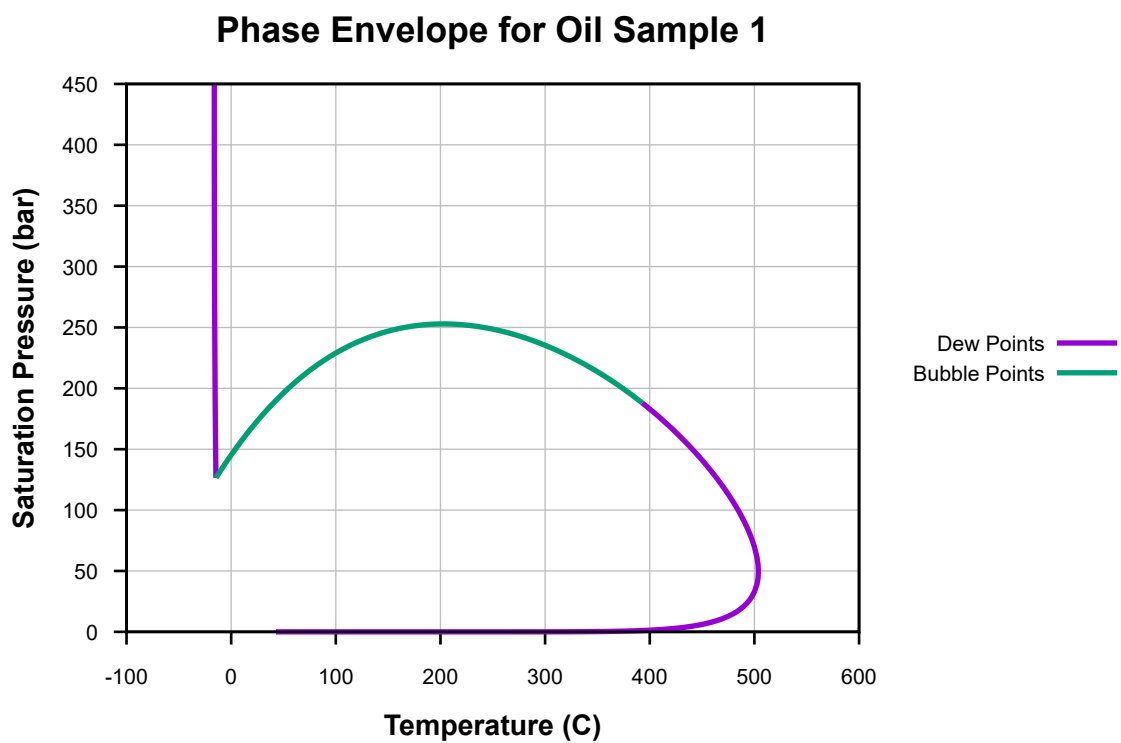


Figure 13: Saturation Pressure vs. Temperature, Phase Envelope for Oil Sample 1.

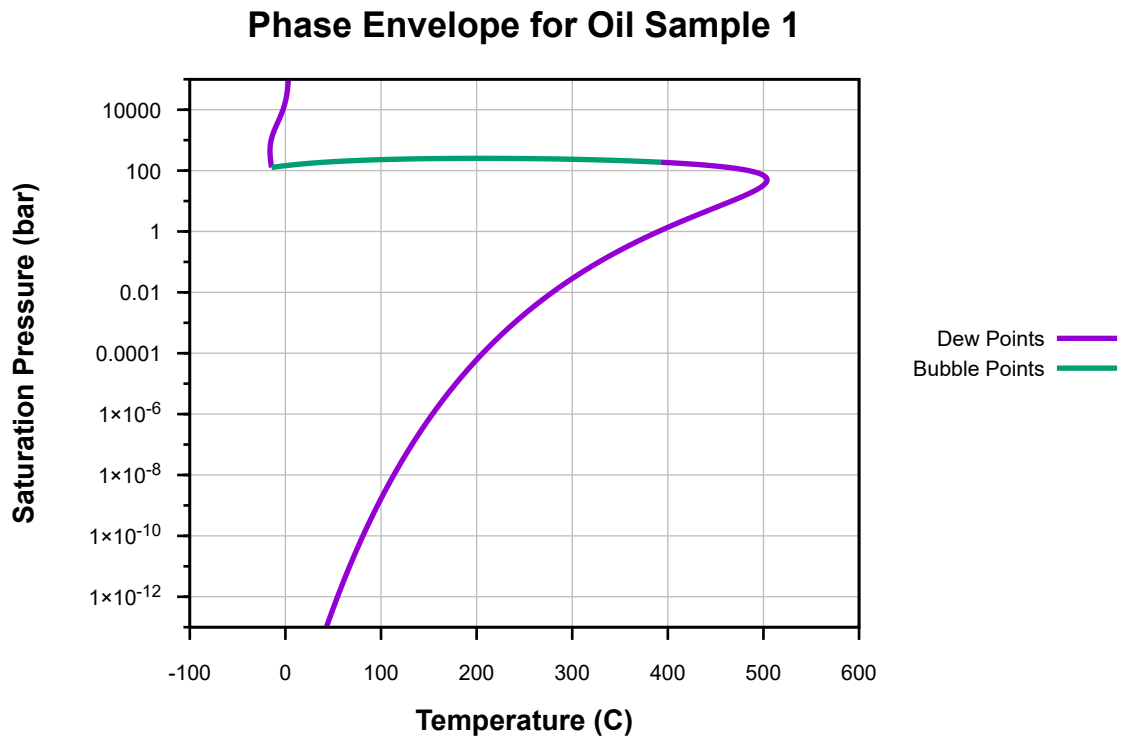


Figure 14: Log of Saturation Pressure vs. Temperature, Phase Envelope for Oil Sample 1.

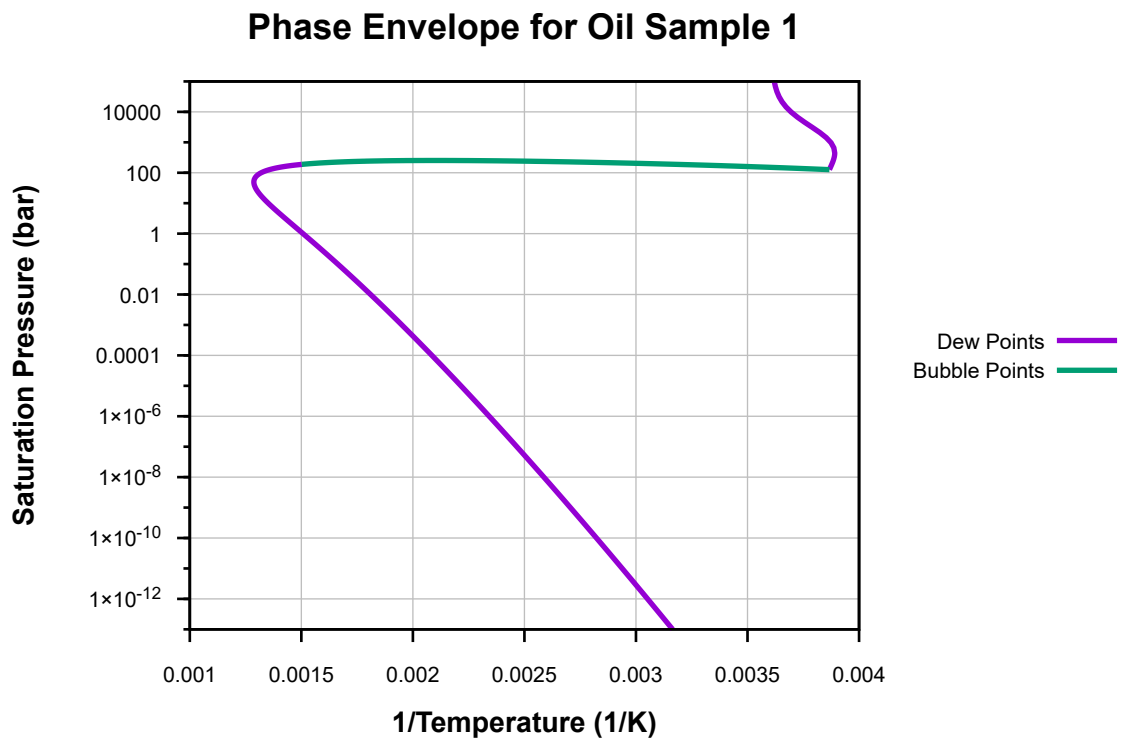


Figure 15: Log of Saturation Pressure vs. $1/\text{Temperature}$, Phase Envelope for Oil Sample 1.

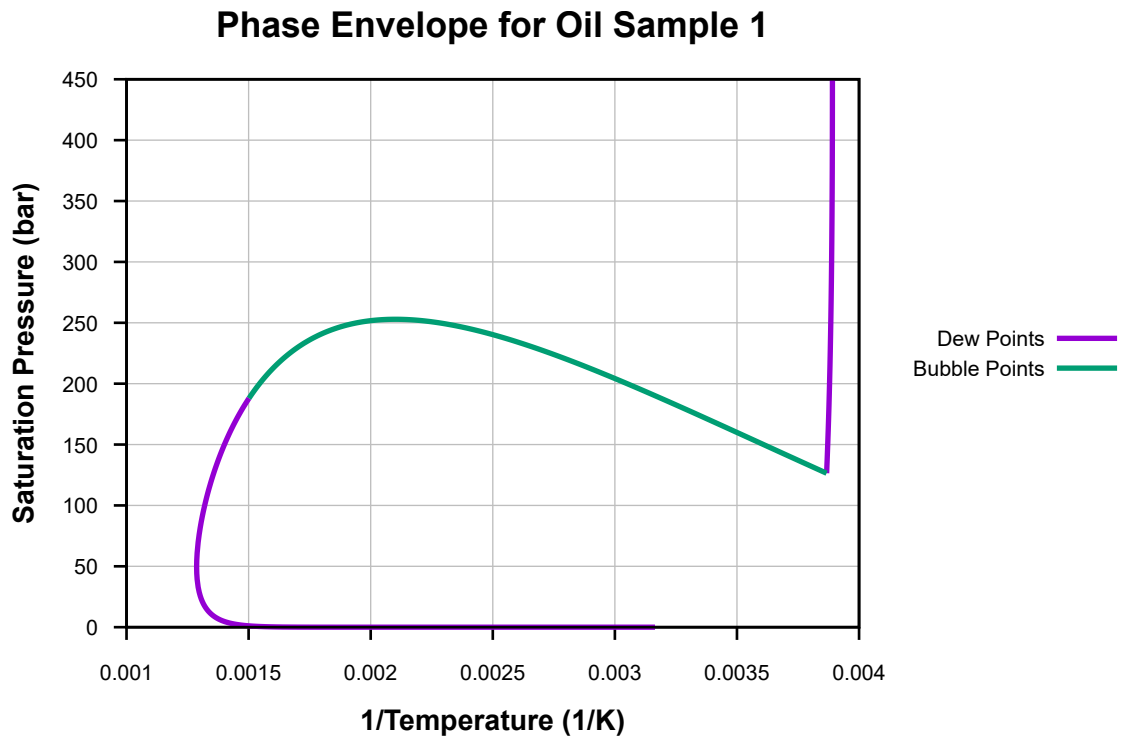


Figure 16: Saturation Pressure vs. 1/Temperature, Phase Envelope for Oil Sample 1.

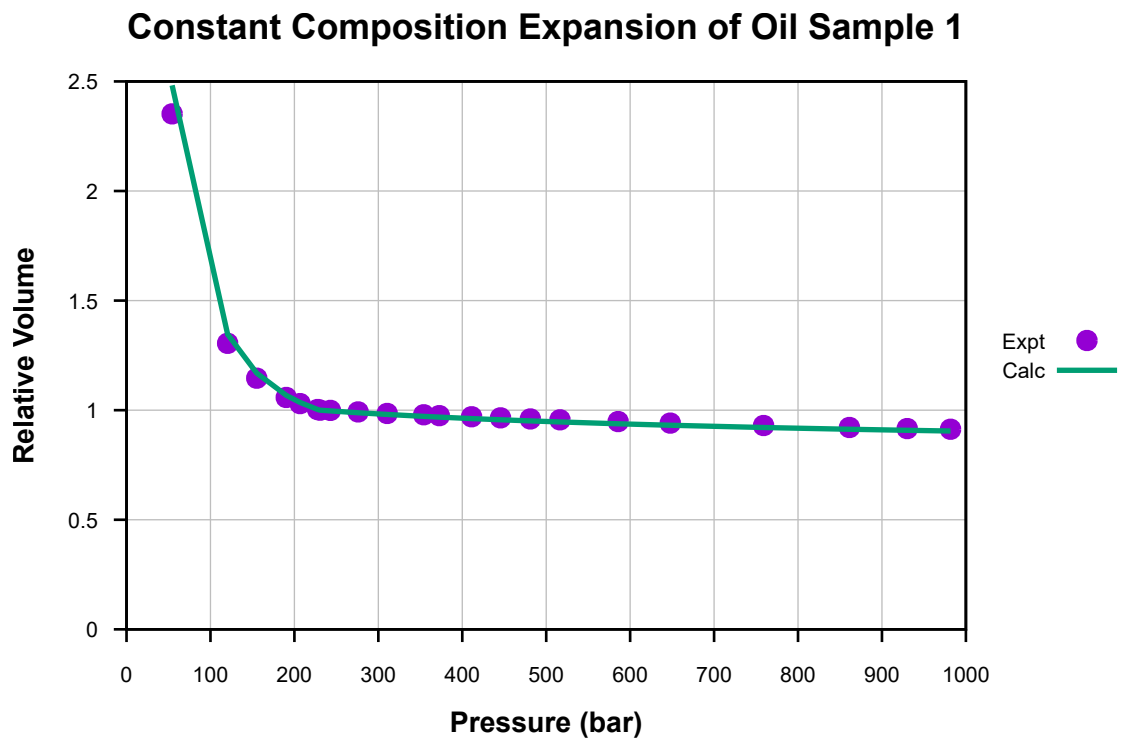


Figure 17: Relative Volume vs. Pressure for Constant Composition Expansion of Oil Sample 1.

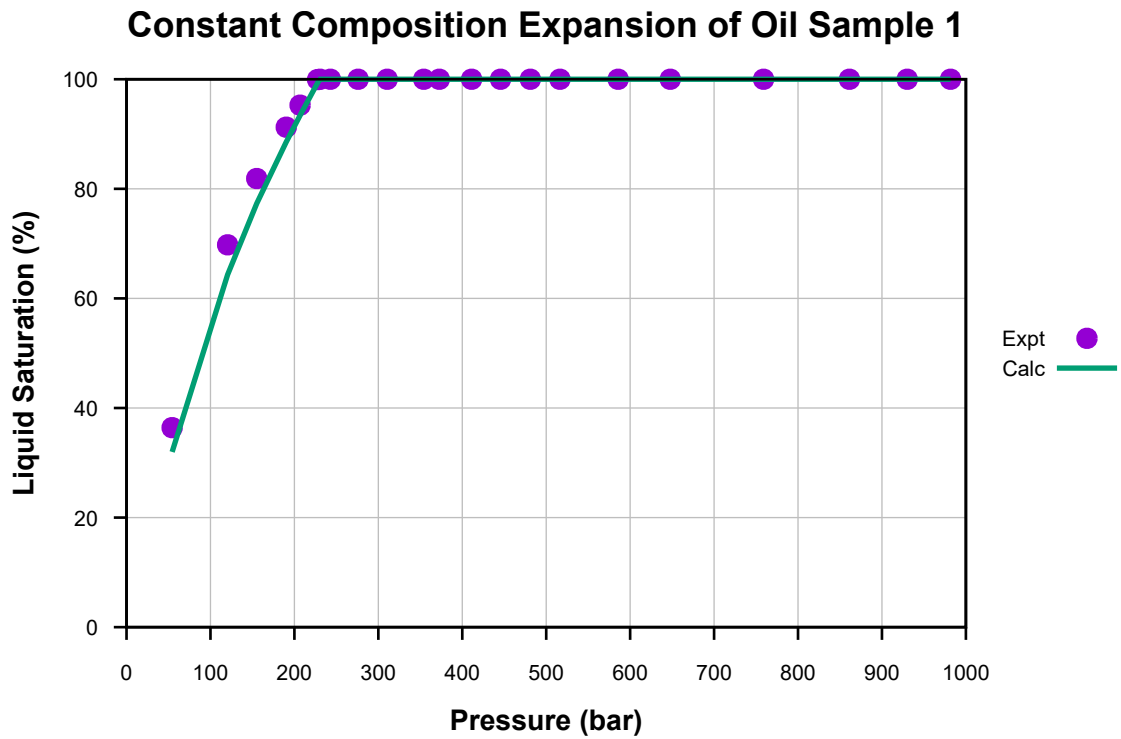


Figure 18: Liquid Saturation vs. Pressure for Constant Composition Expansion of Oil Sample 1.

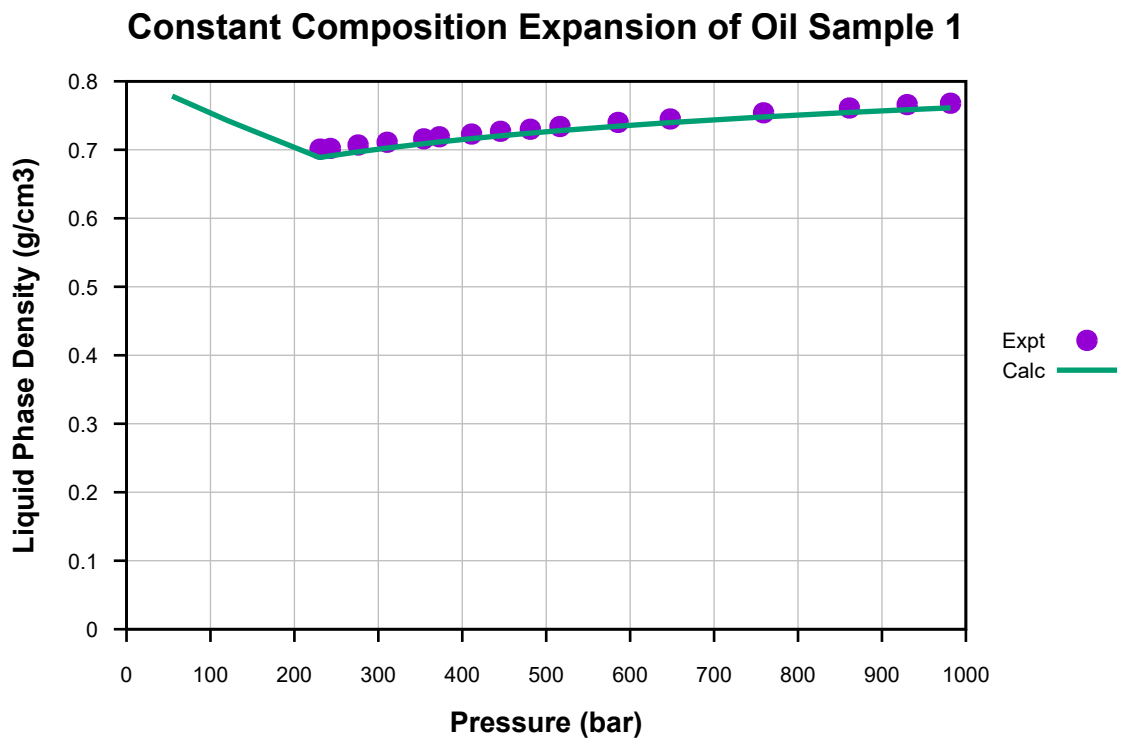


Figure 19: Liquid Phase Density vs. Pressure for Constant Composition Expansion of Oil Sample 1.

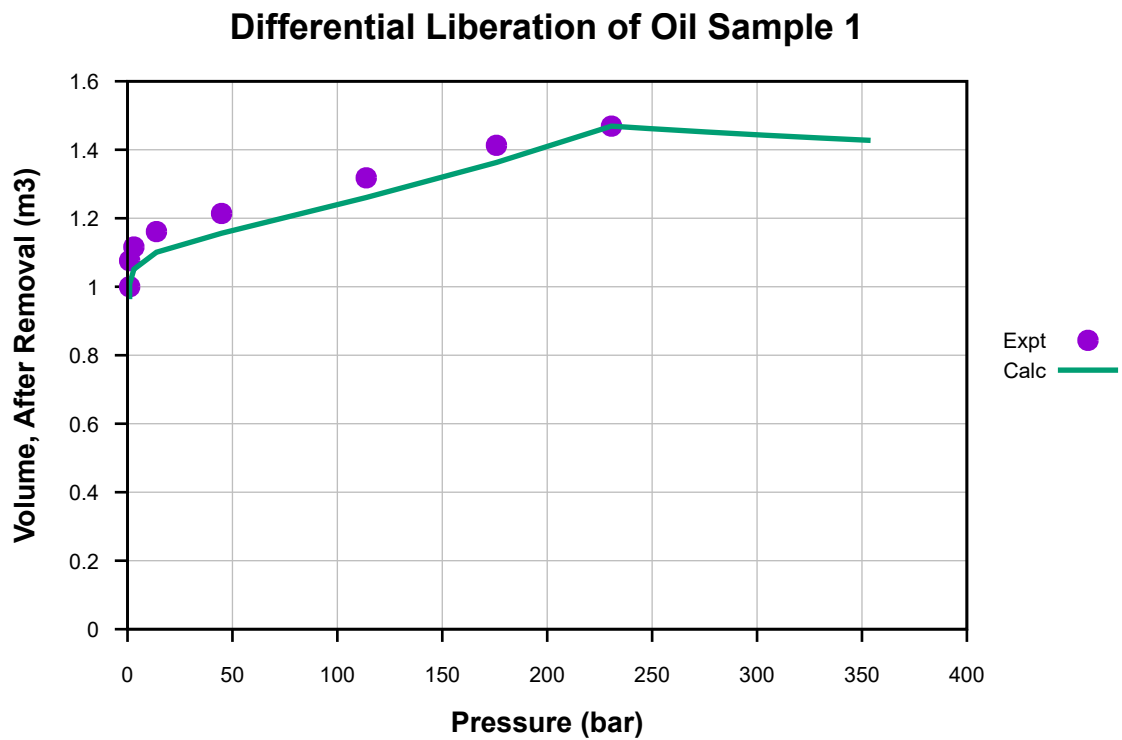


Figure 20: Volume, After Removal, vs. Pressure for Differential Liberation of Oil Sample 1.

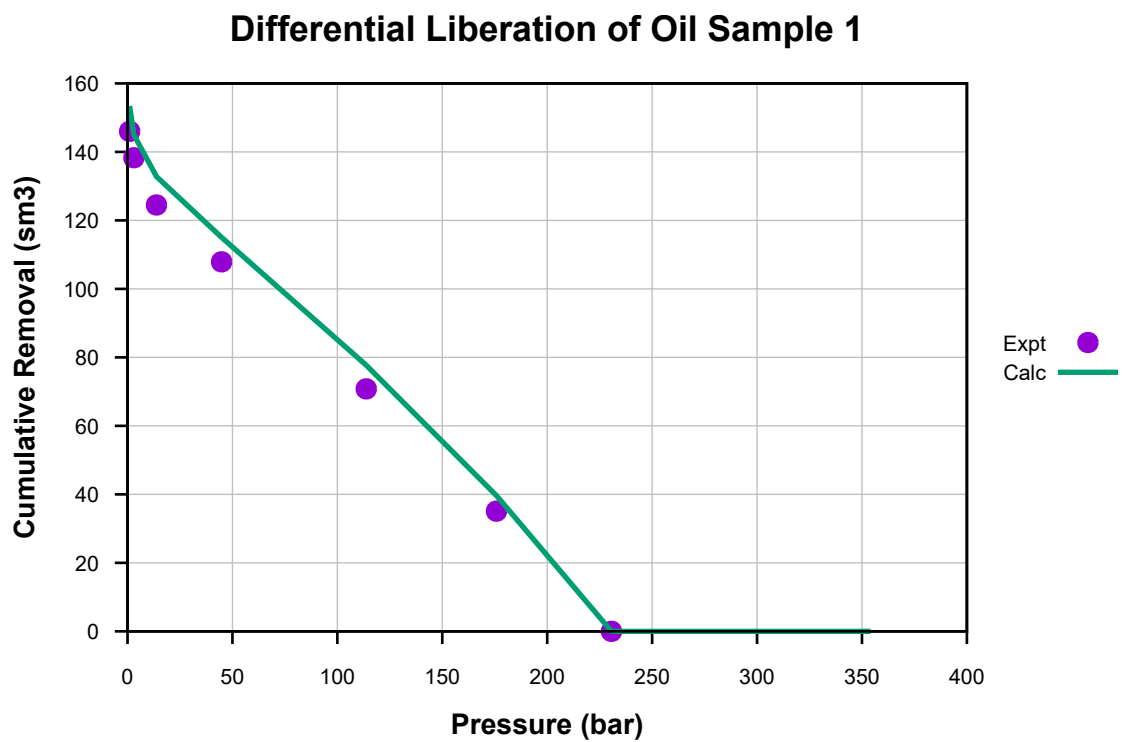


Figure 21: Cumulative Removal vs. Pressure for Differential Liberation of Oil Sample 1.

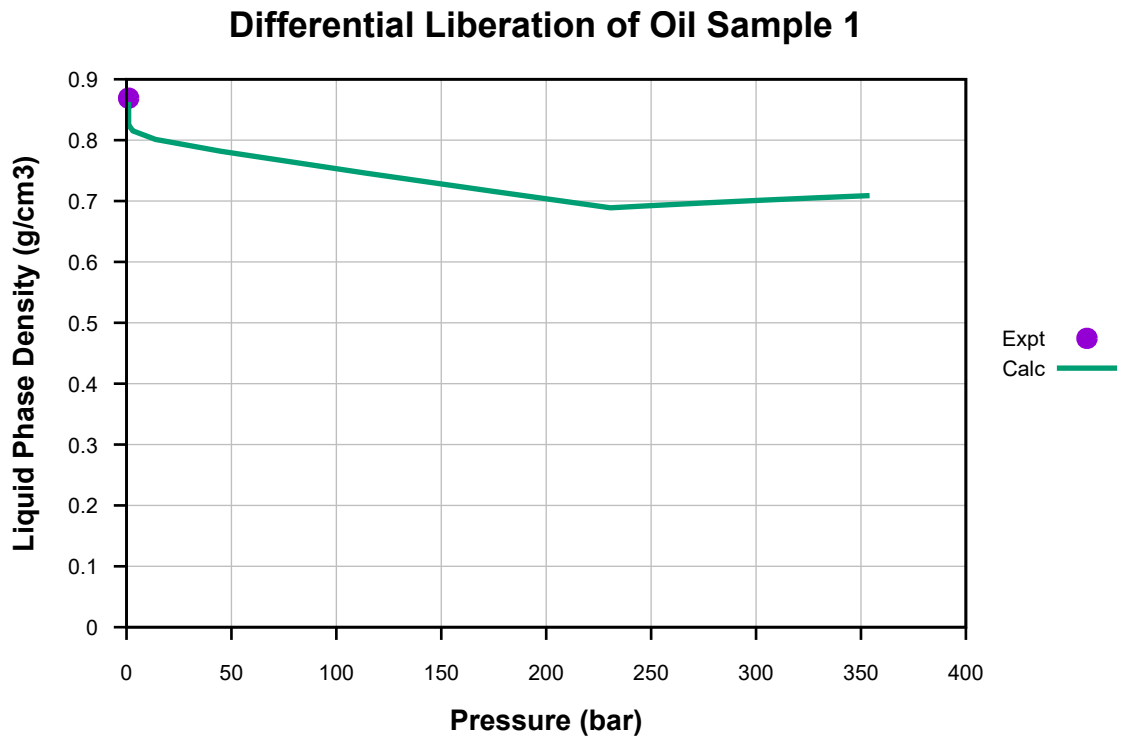


Figure 22: Liquid Phase Density vs. Pressure for Differential Liberation of Oil Sample 1.

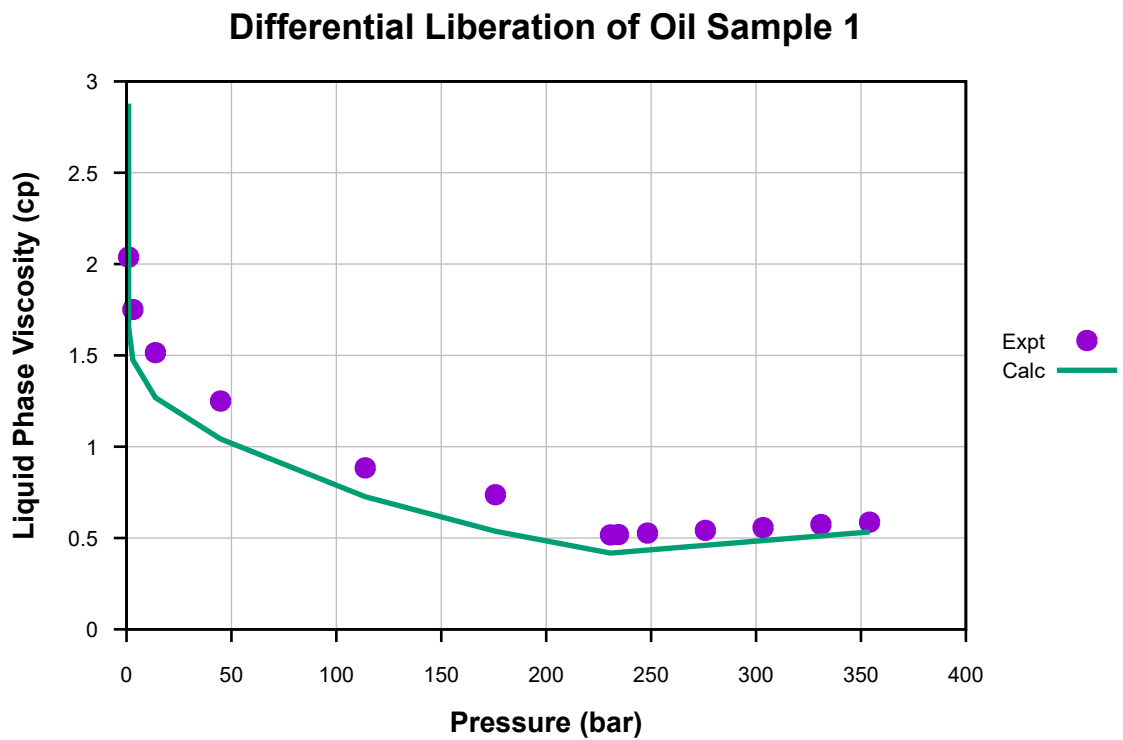


Figure 23: Liquid Phase Viscosity vs. Pressure for Differential Liberation of Oil Sample 1.

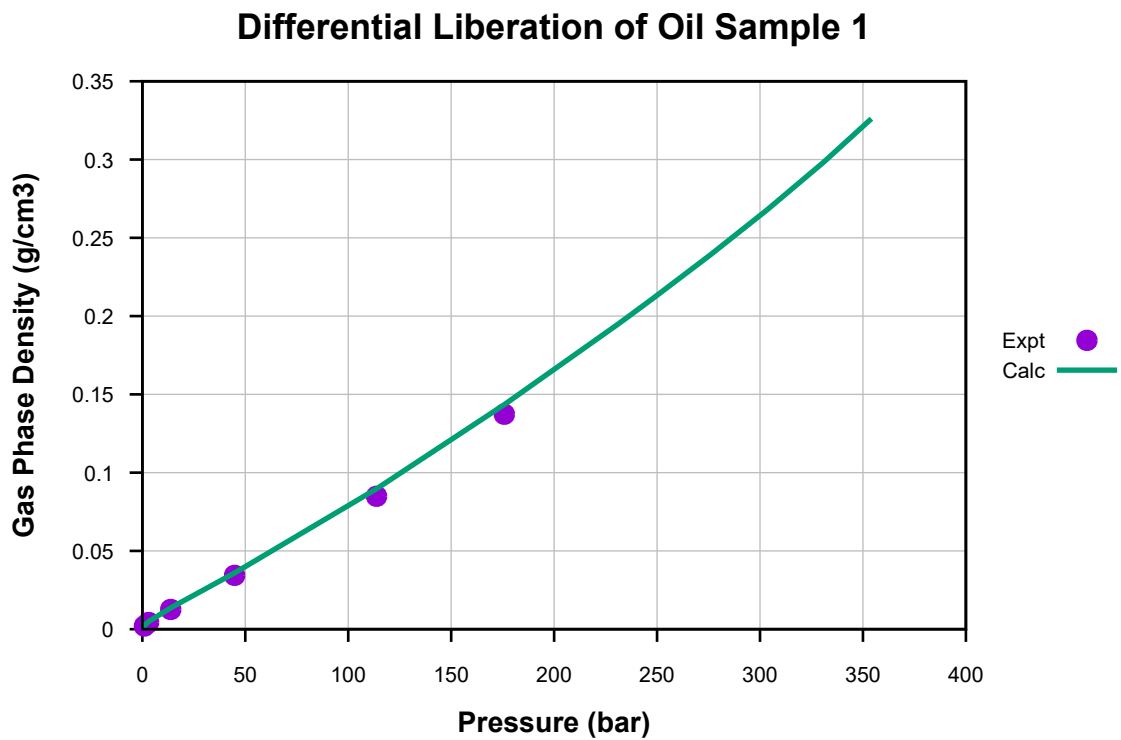


Figure 24: Gas Phase Density vs. Pressure for Differential Liberation of Oil Sample 1.

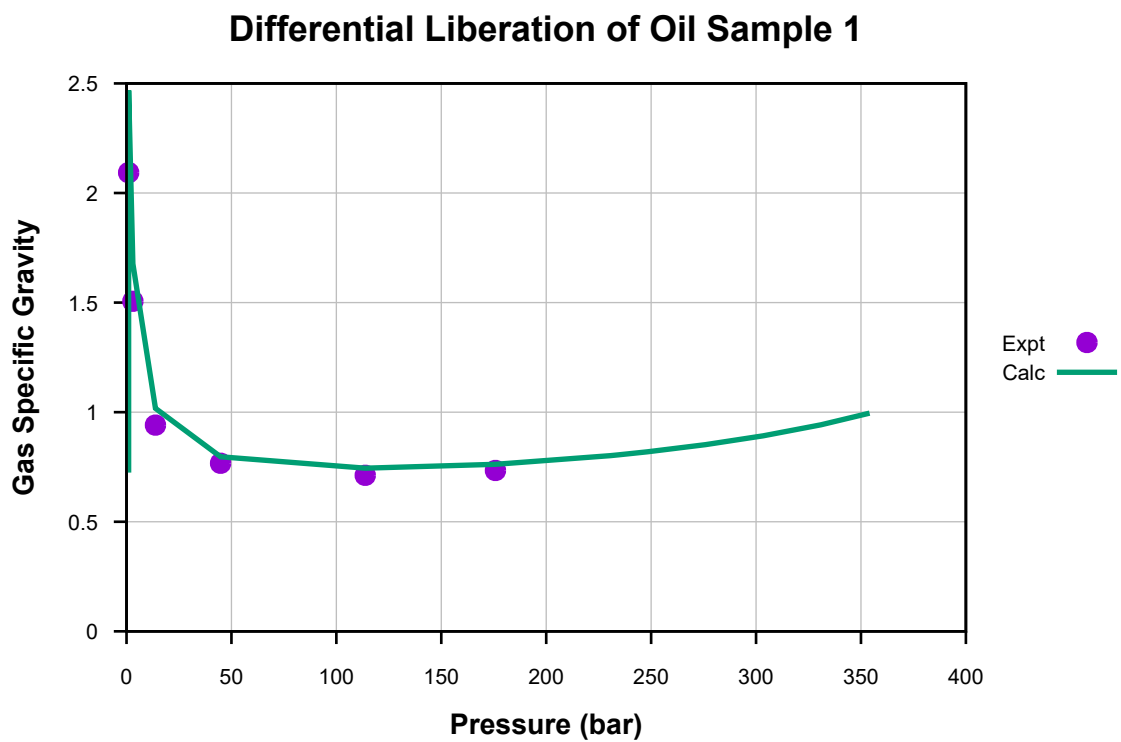


Figure 25: Gas Specific Gravity vs. Pressure for Differential Liberation of Oil Sample 1.

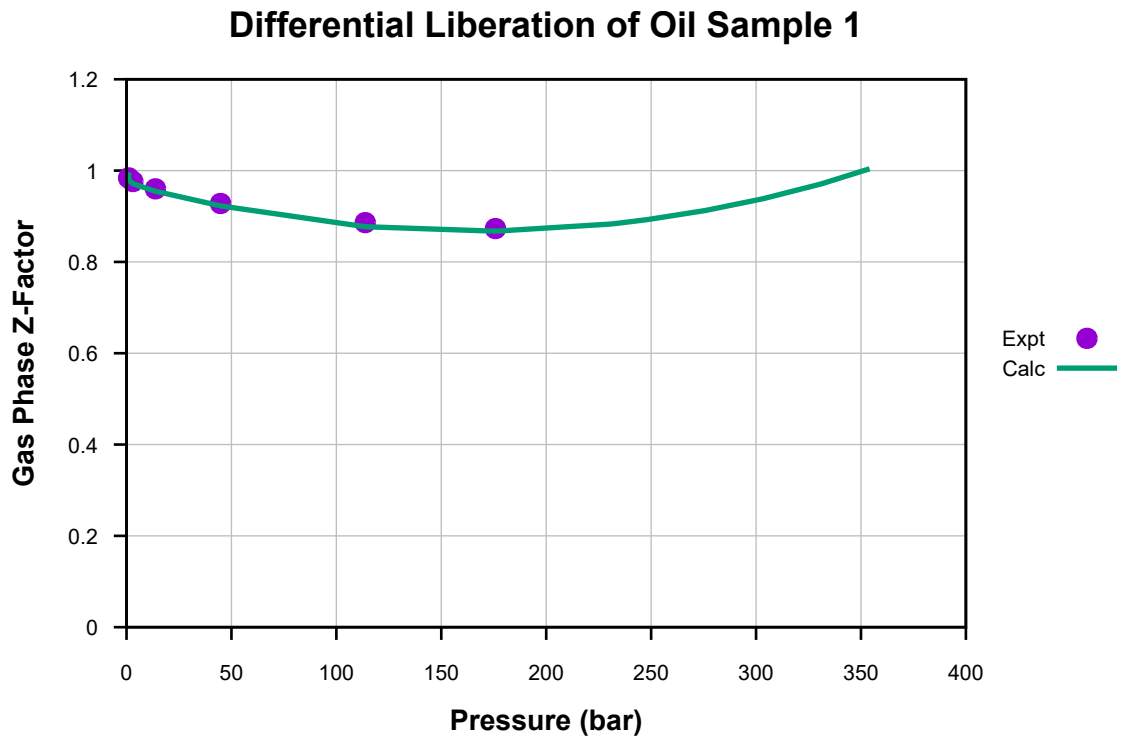


Figure 26: Gas Phase Z-Factor vs. Pressure for Differential Liberation of Oil Sample 1.

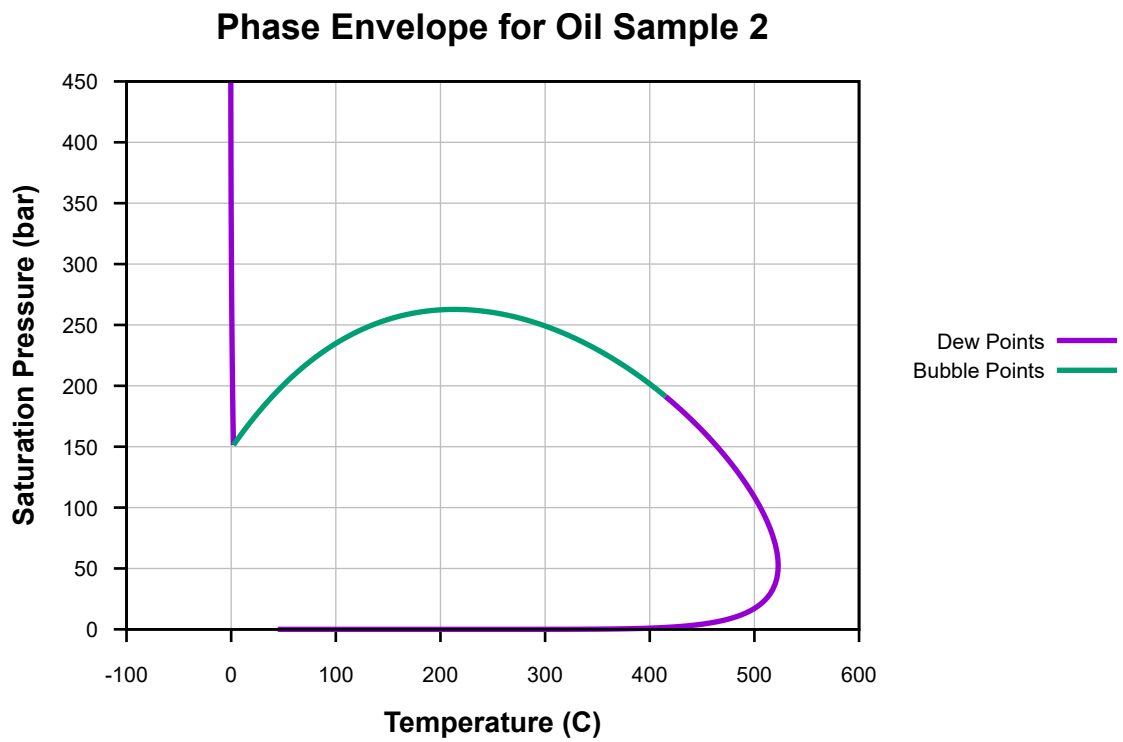


Figure 27: Saturation Pressure vs. Temperature, Phase Envelope for Oil Sample 2.

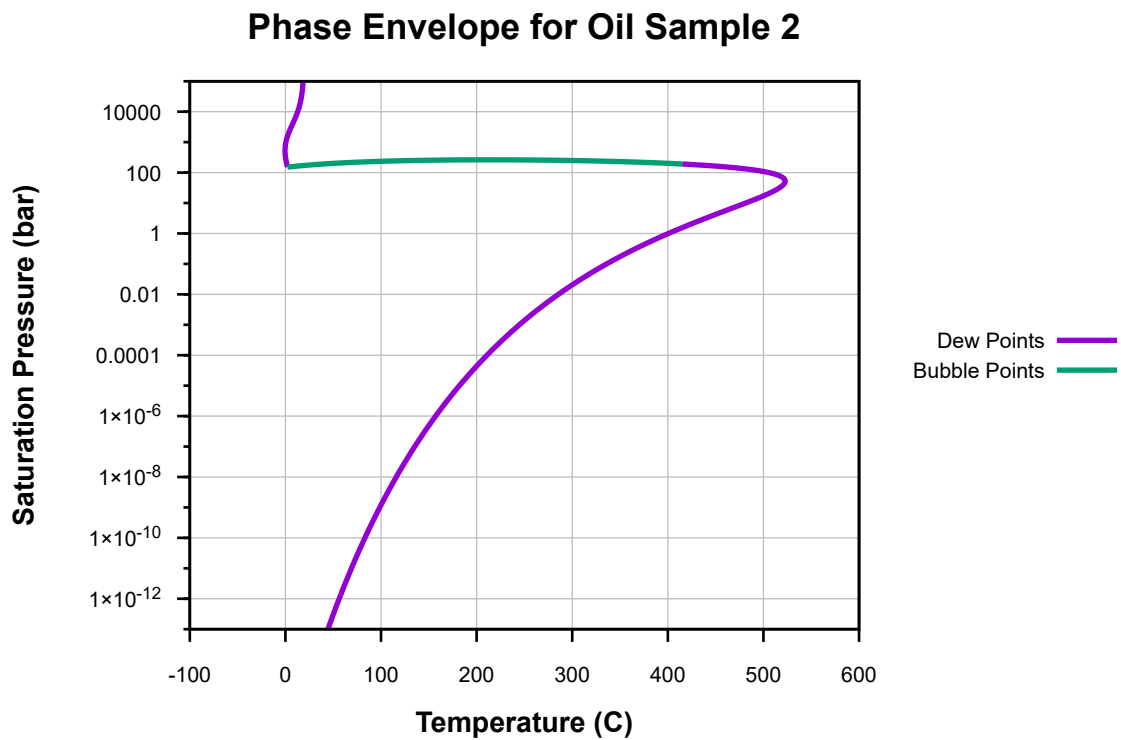


Figure 28: Log of Saturation Pressure vs. Temperature, Phase Envelope for Oil Sample 2.

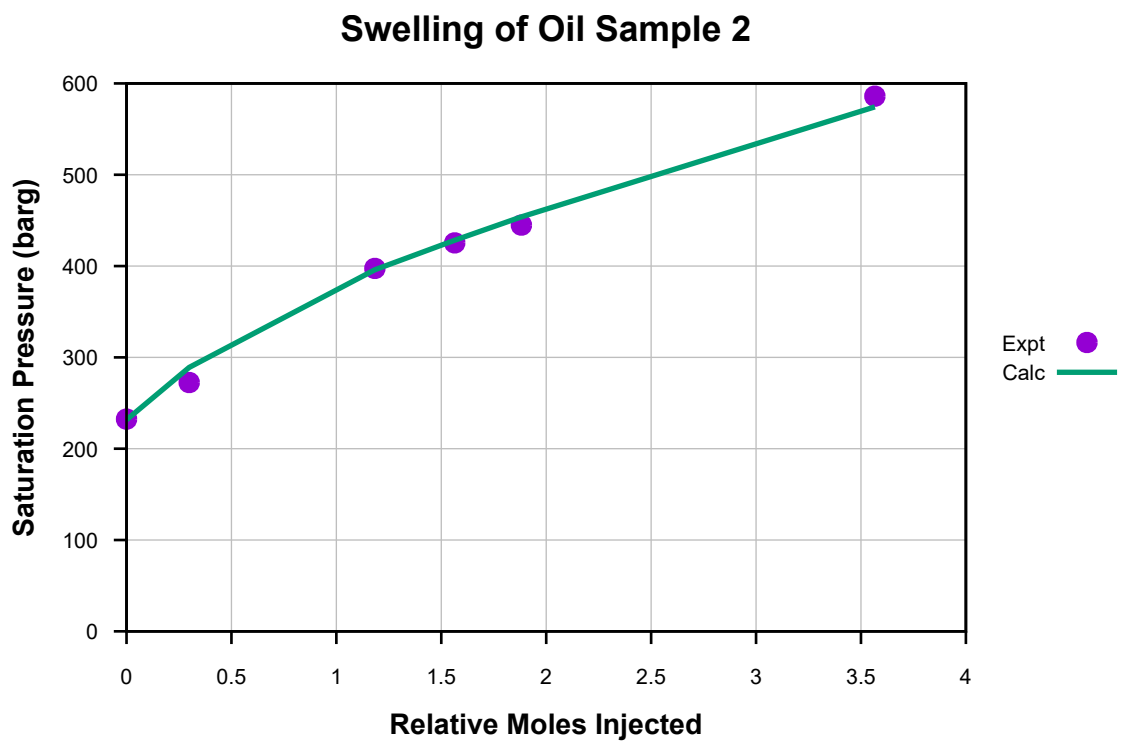


Figure 29: Saturation Pressure vs. Relative Moles Injected for Swelling of Oil Sample 2.

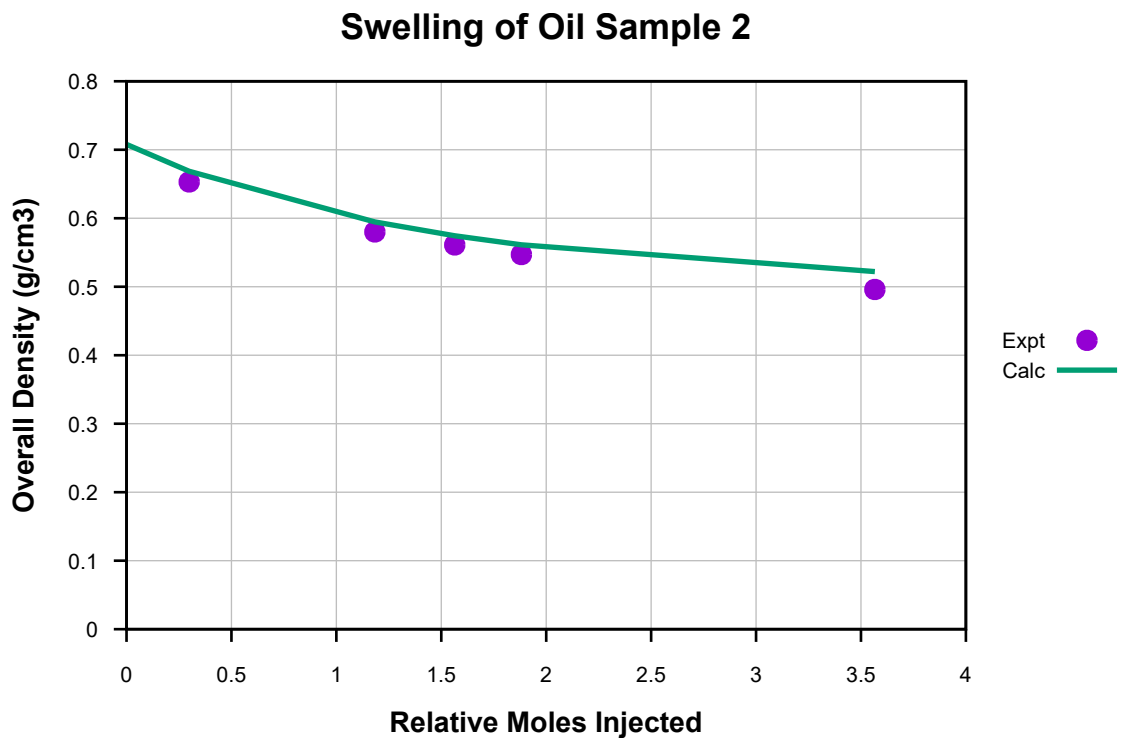


Figure 30: Overall Density vs. Relative Moles Injected for Swelling of Oil Sample 2.

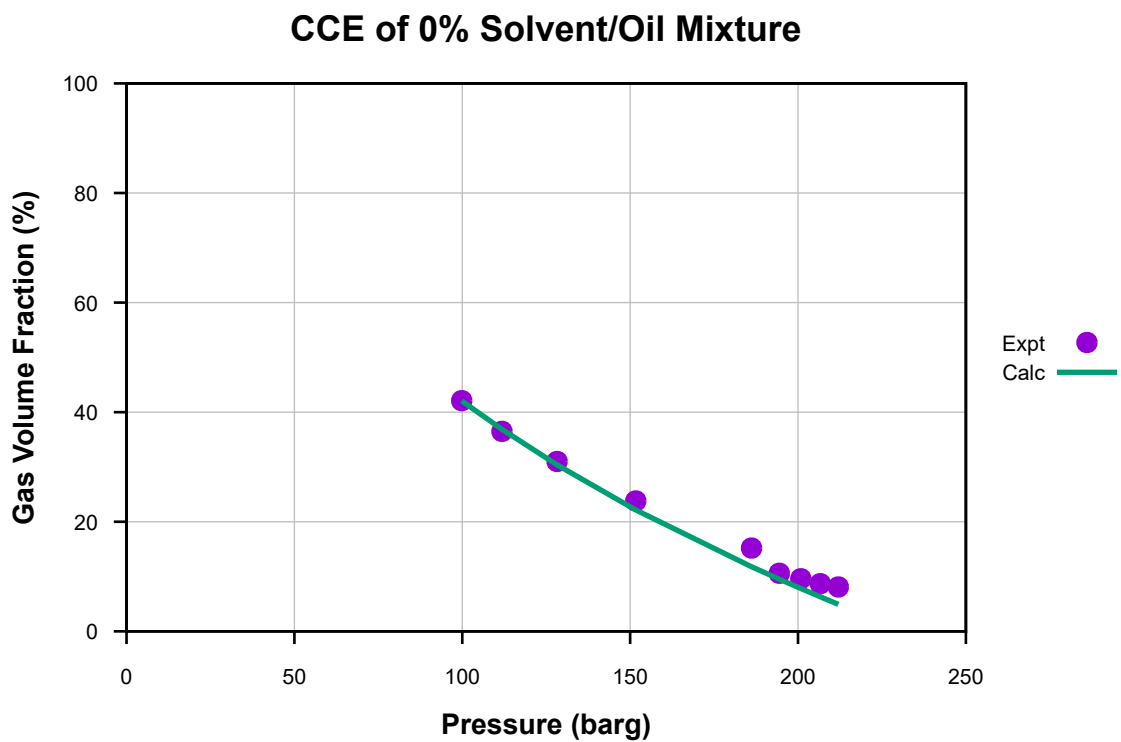


Figure 31: Gas Volume Fraction vs. Pressure for CCE of 0% Solvent/Oil Mixture.

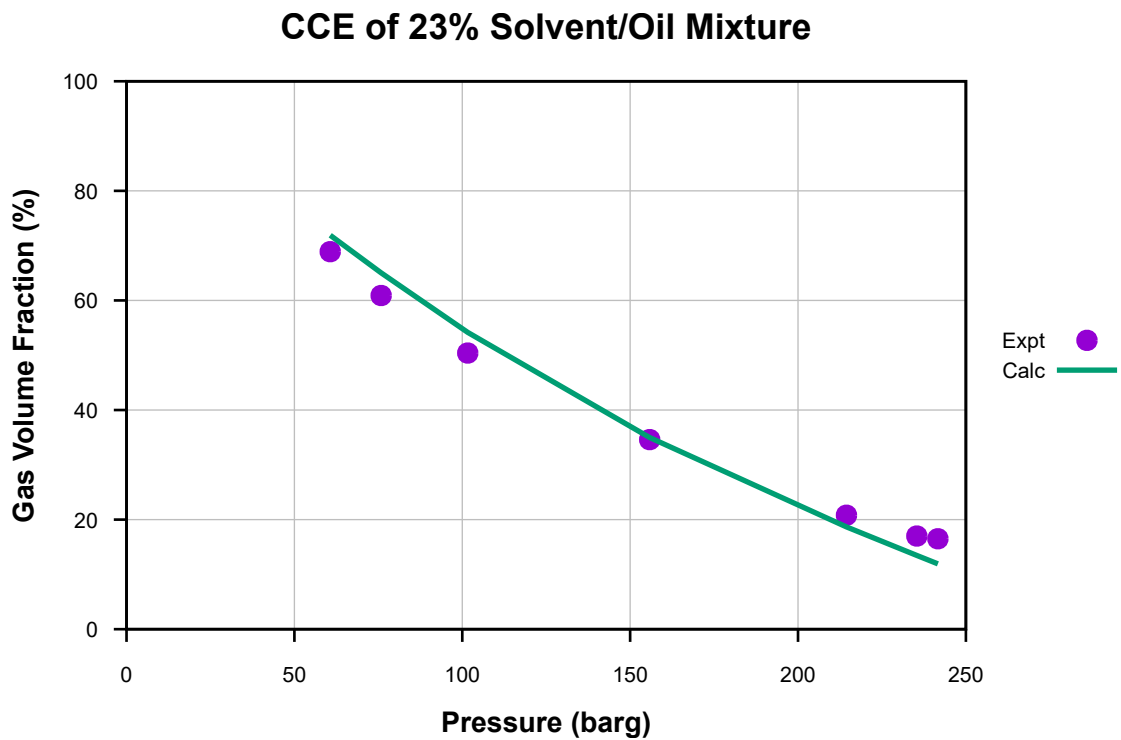


Figure 32: Gas Volume Fraction vs. Pressure for CCE of 23% Solvent/Oil Mixture.

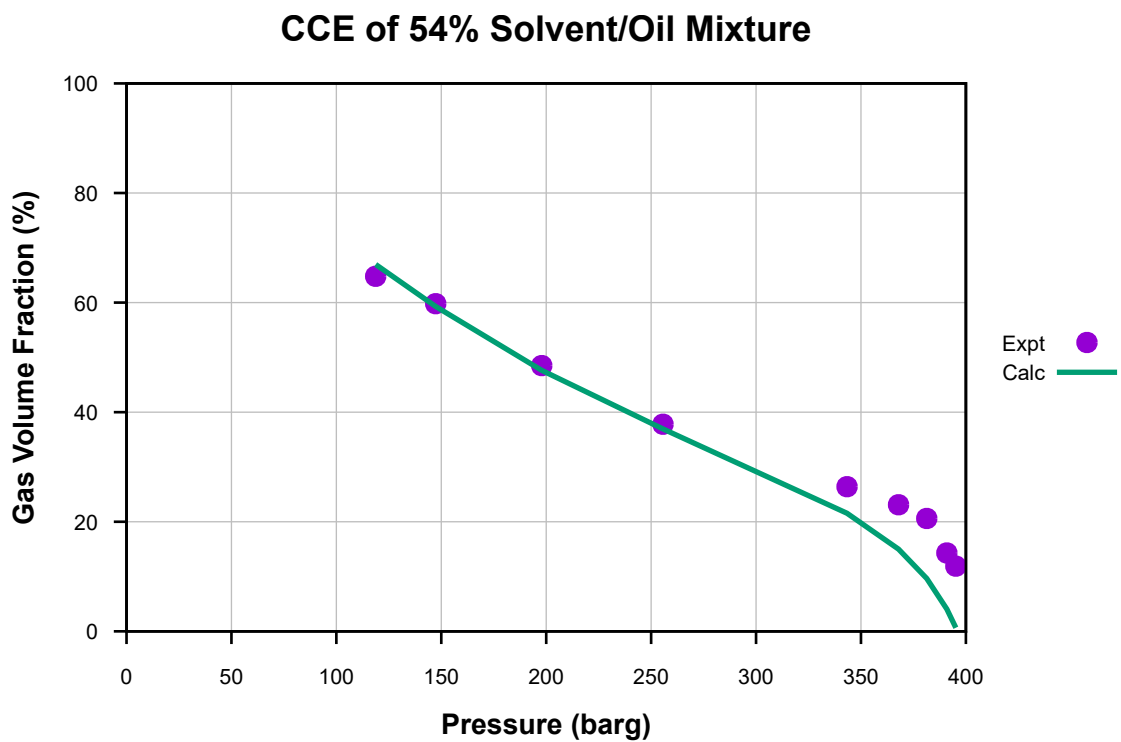


Figure 33: Gas Volume Fraction vs. Pressure for CCE of 54% Solvent/Oil Mixture.

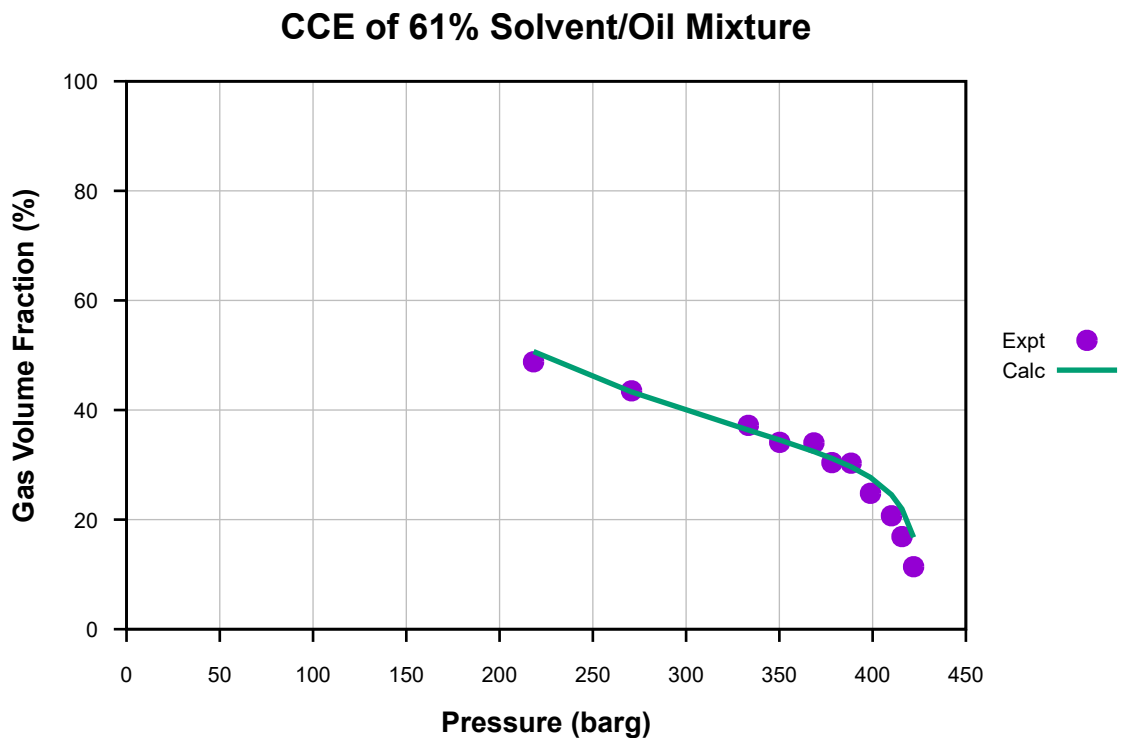


Figure 34: Gas Volume Fraction vs. Pressure for CCE of 61% Solvent/Oil Mixture.

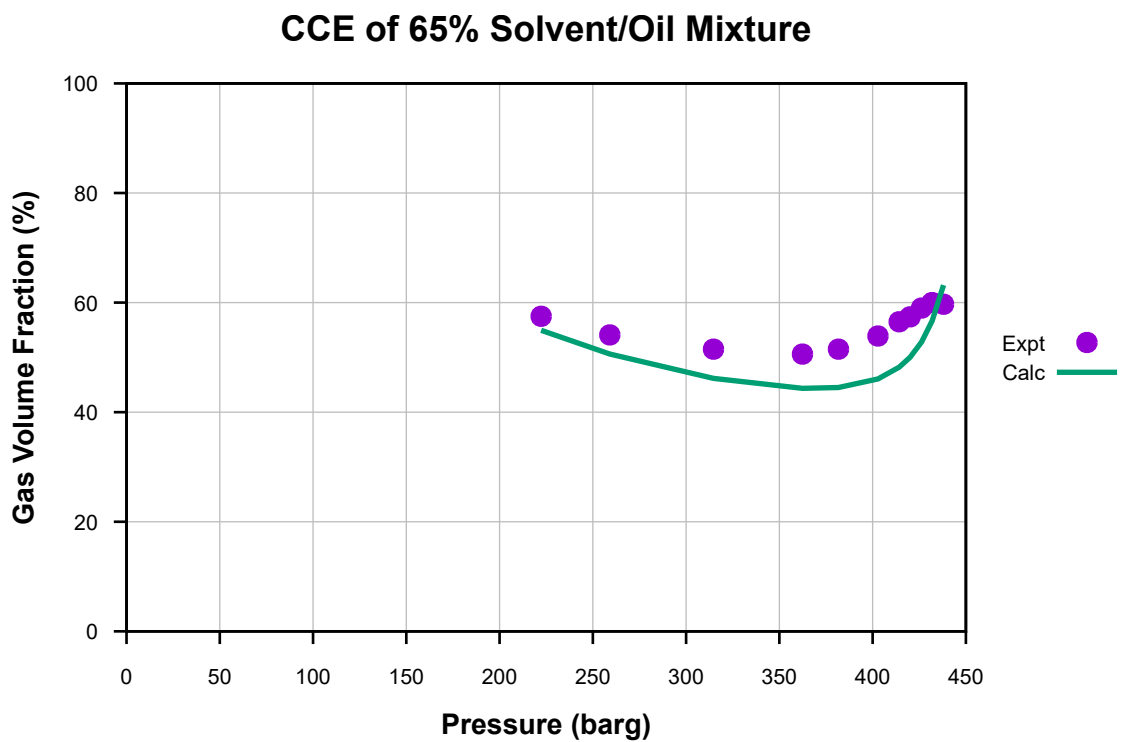


Figure 35: Gas Volume Fraction vs. Pressure for CCE of 65% Solvent/Oil Mixture.

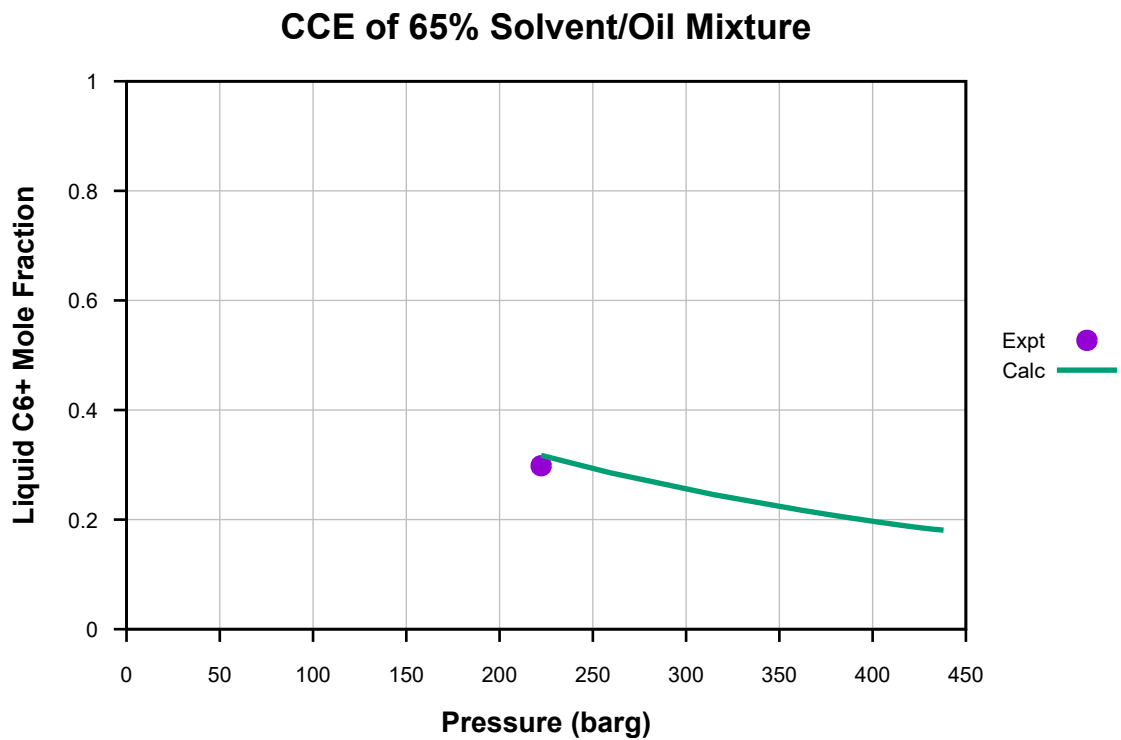


Figure 36: Liquid C6+ Mole Fraction vs. Pressure for CCE of 65% Solvent/Oil Mixture.

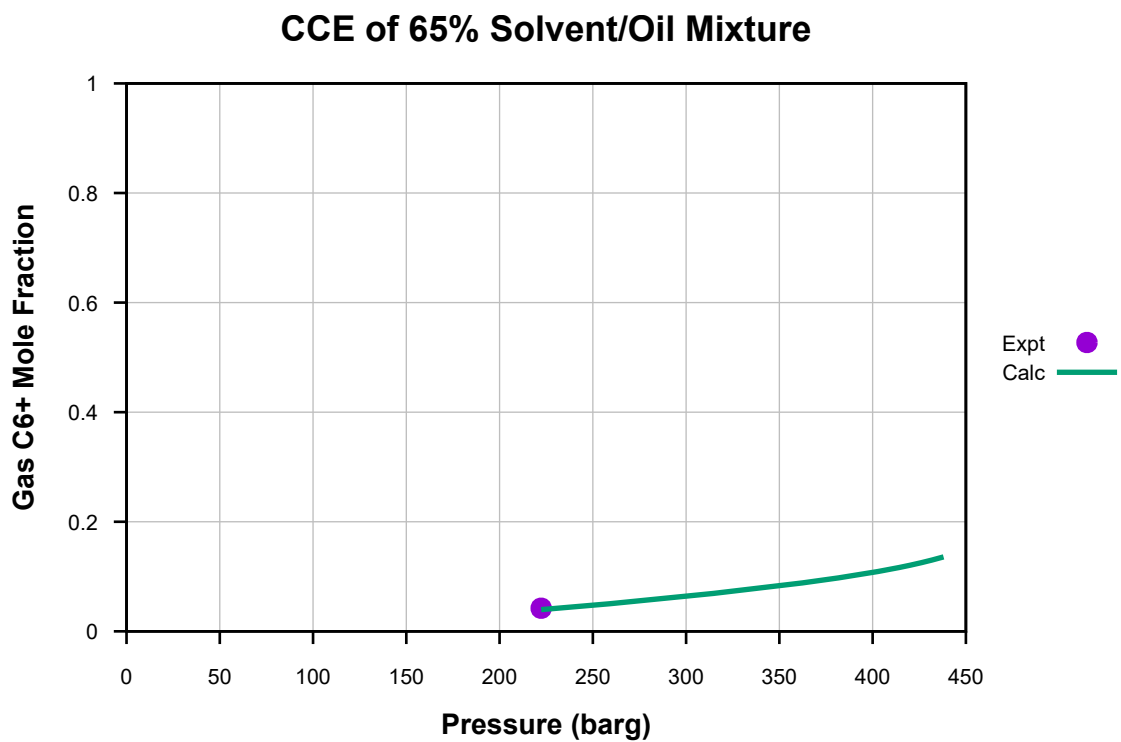


Figure 37: Gas C6+ Mole Fraction vs. Pressure for CCE of 65% Solvent/Oil Mixture.

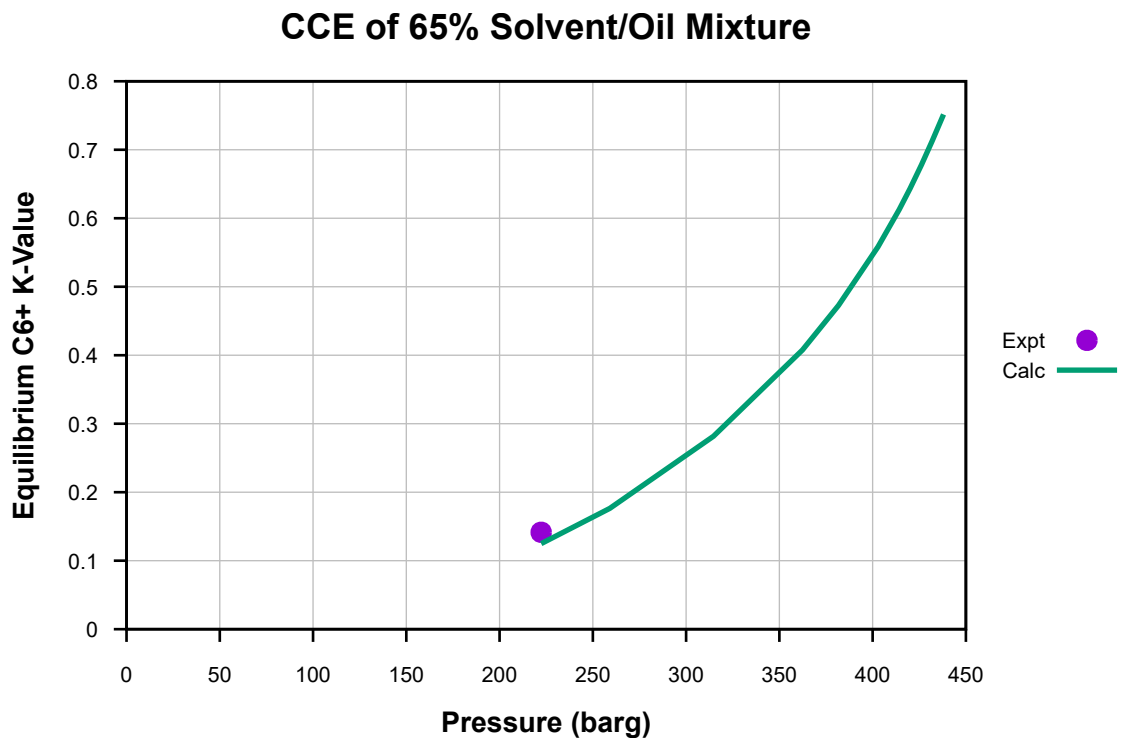


Figure 38: Equilibrium C6+ K-Value vs. Pressure for CCE of 65% Solvent/Oil Mixture.

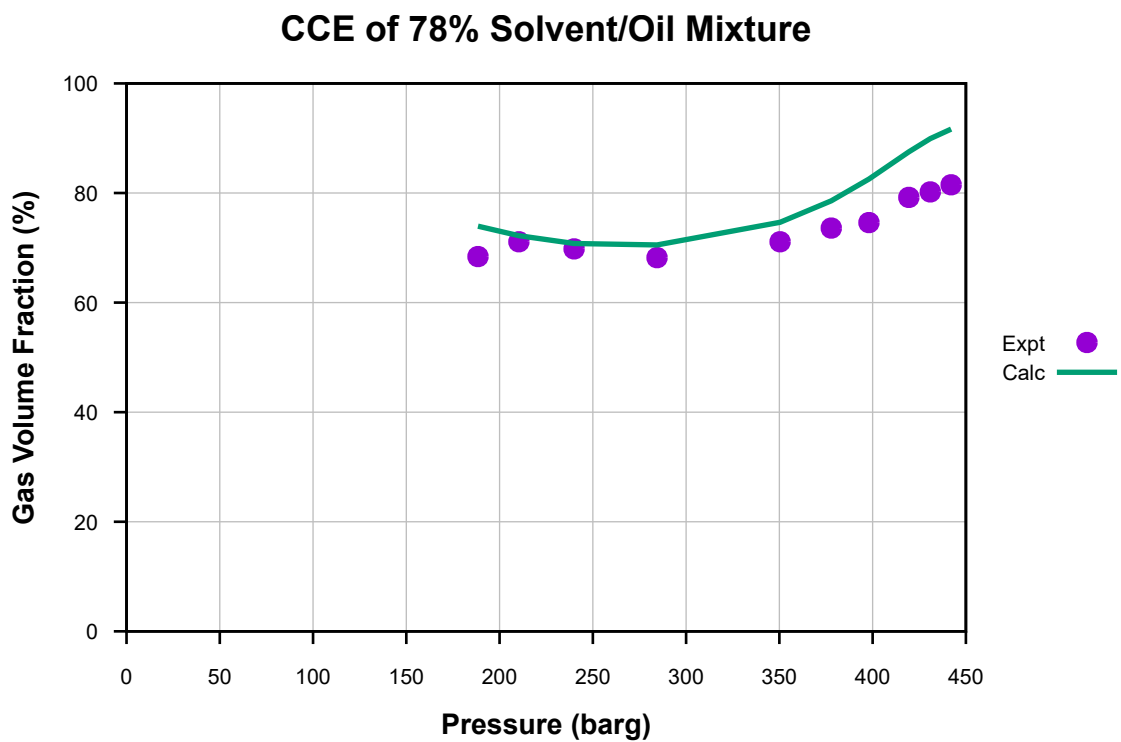


Figure 39: Gas Volume Fraction vs. Pressure for CCE of 78% Solvent/Oil Mixture.

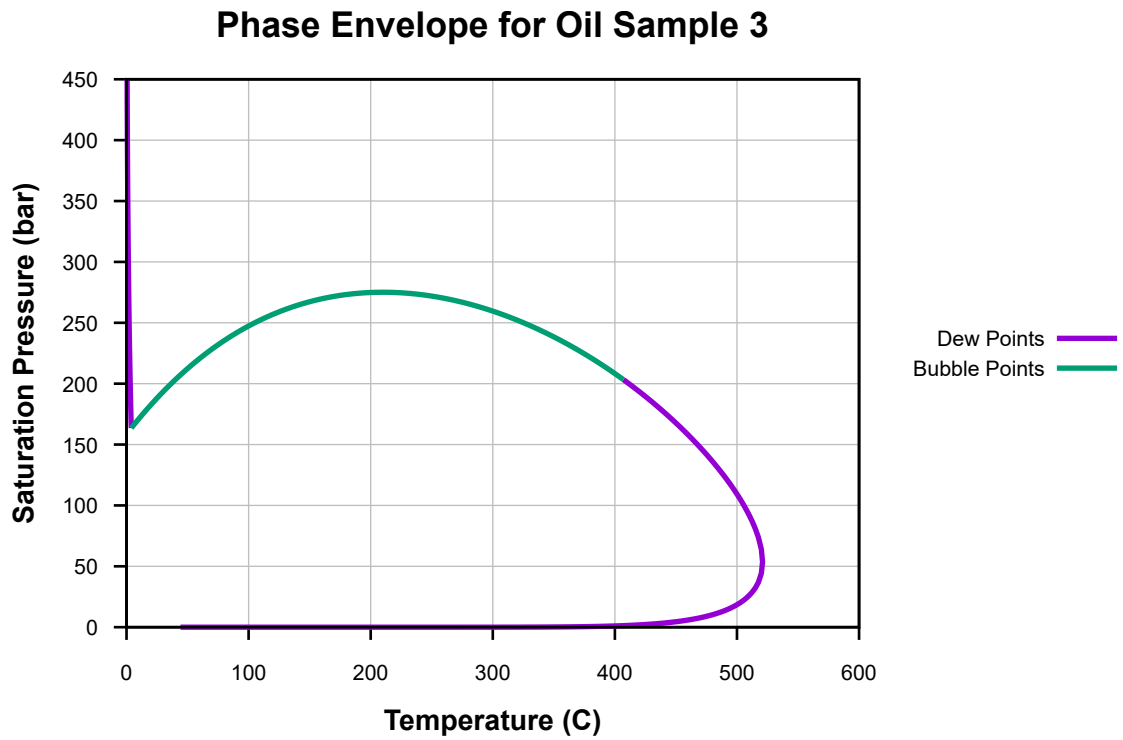


Figure 40: Saturation Pressure vs. Temperature, Phase Envelope for Oil Sample 3.

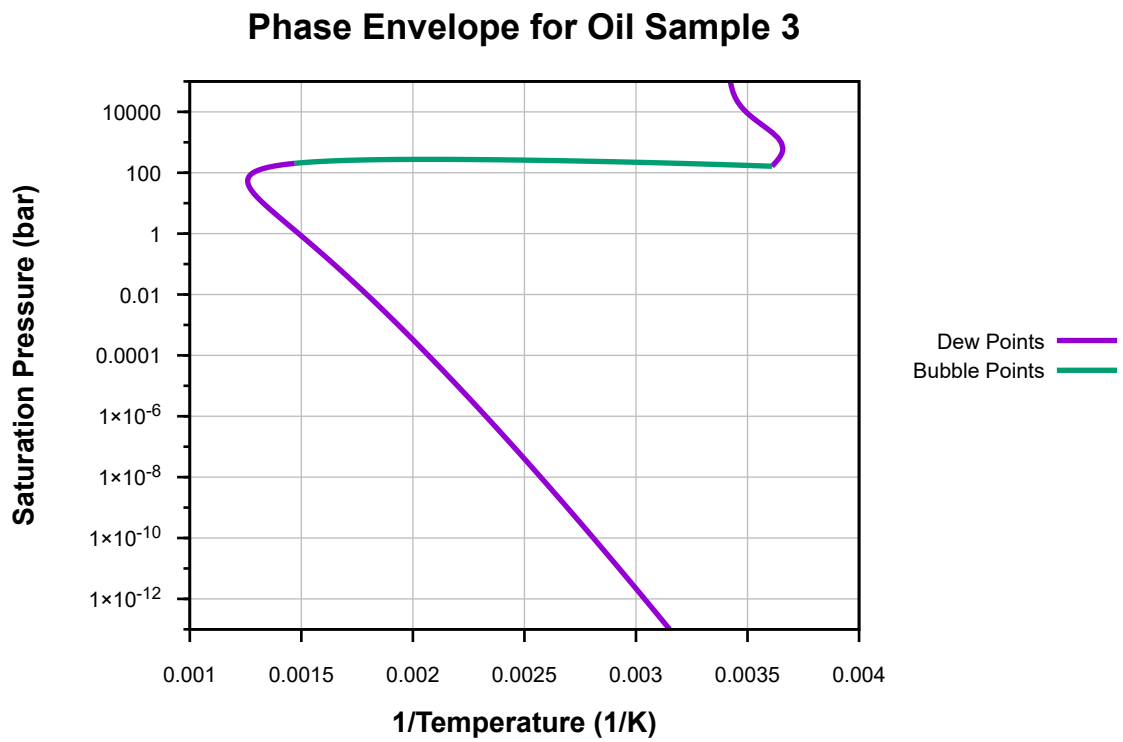


Figure 41: Log of Saturation Pressure vs. 1/Temperature, Phase Envelope for Oil Sample 3.

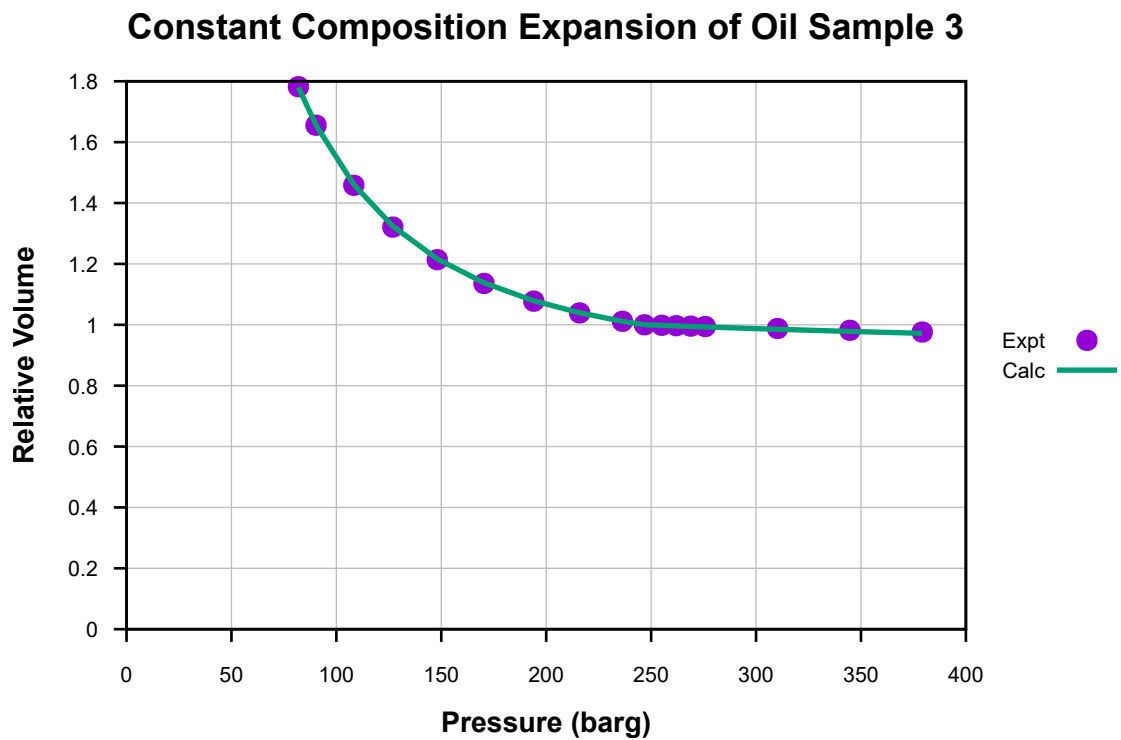


Figure 42: Relative Volume vs. Pressure for Constant Composition Expansion of Oil Sample 3.

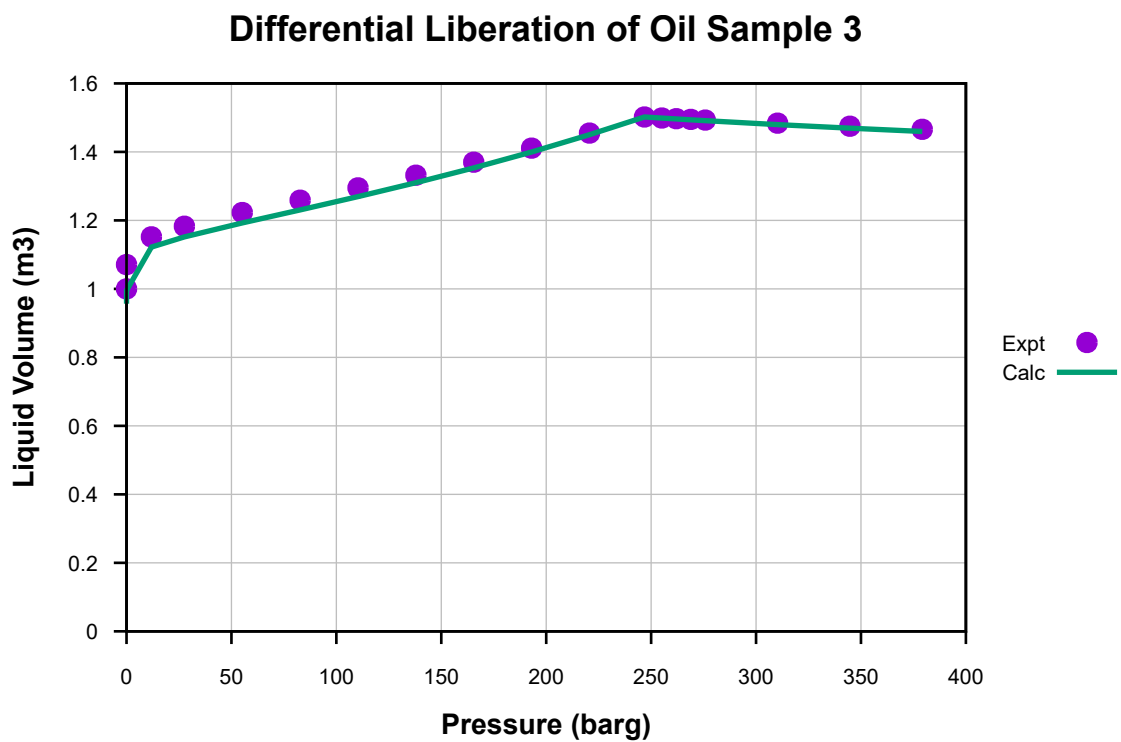


Figure 43: Liquid Volume vs. Pressure for Differential Liberation of Oil Sample 3.

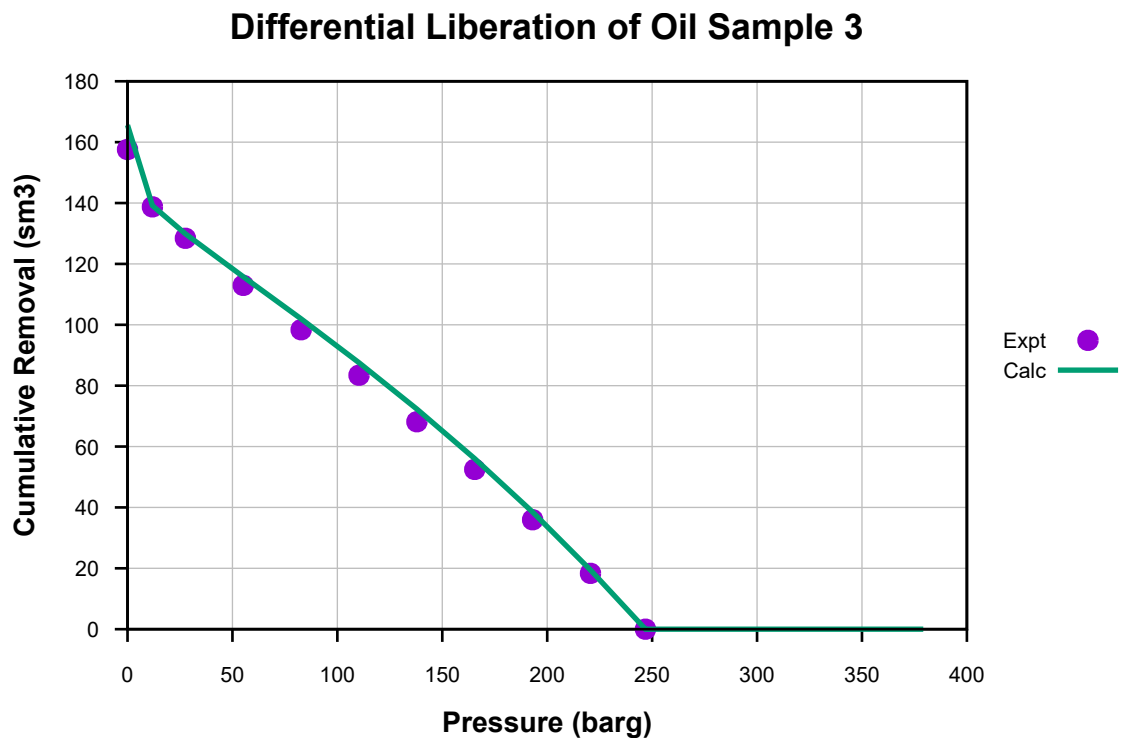


Figure 44: Cumulative Removal vs. Pressure for Differential Liberation of Oil Sample 3.

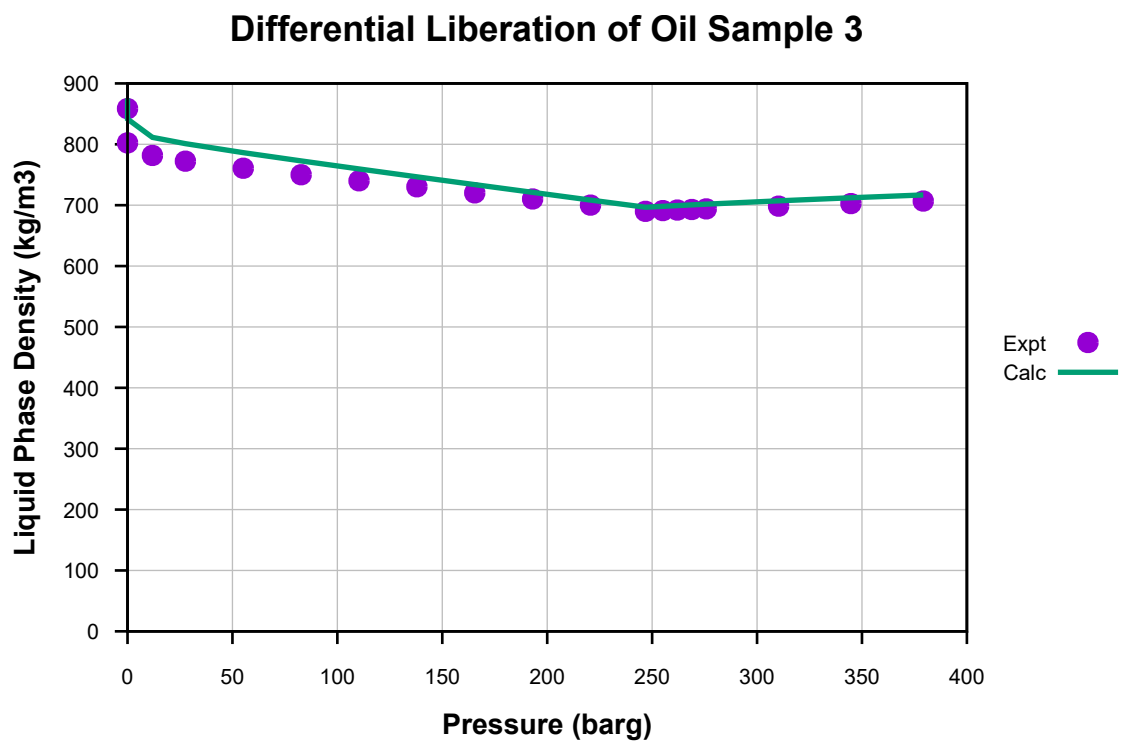


Figure 45: Liquid Phase Density vs. Pressure for Differential Liberation of Oil Sample 3.

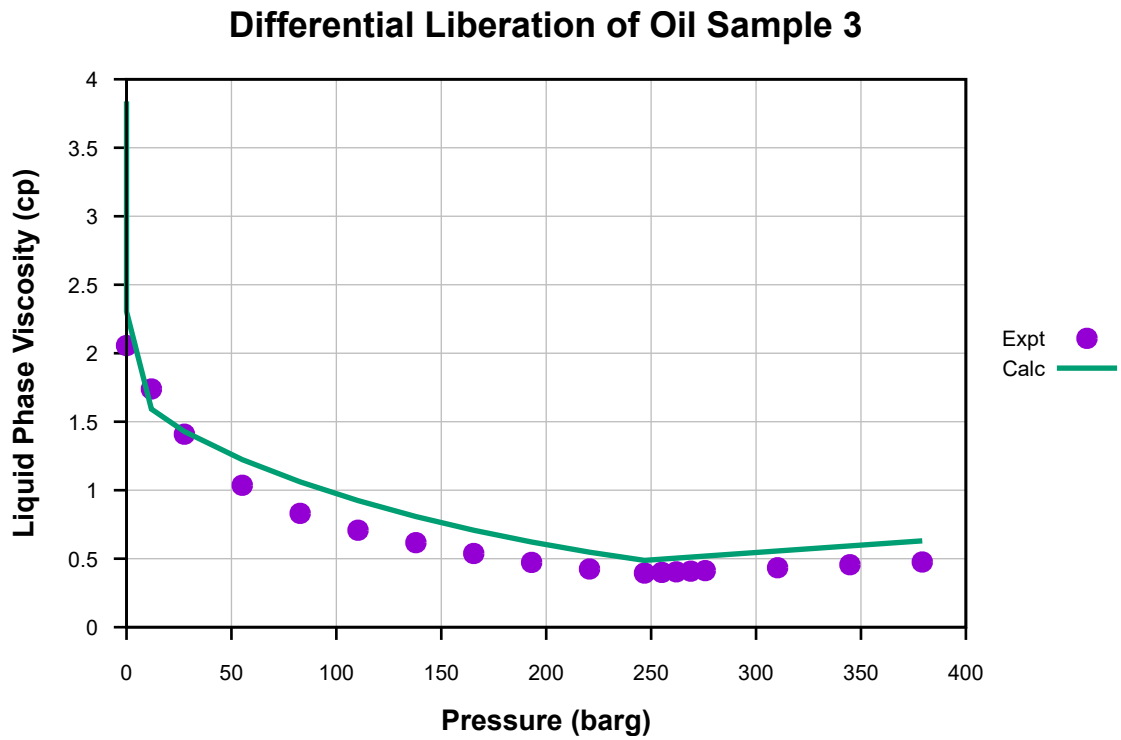


Figure 46: Liquid Phase Viscosity vs. Pressure for Differential Liberation of Oil Sample 3.

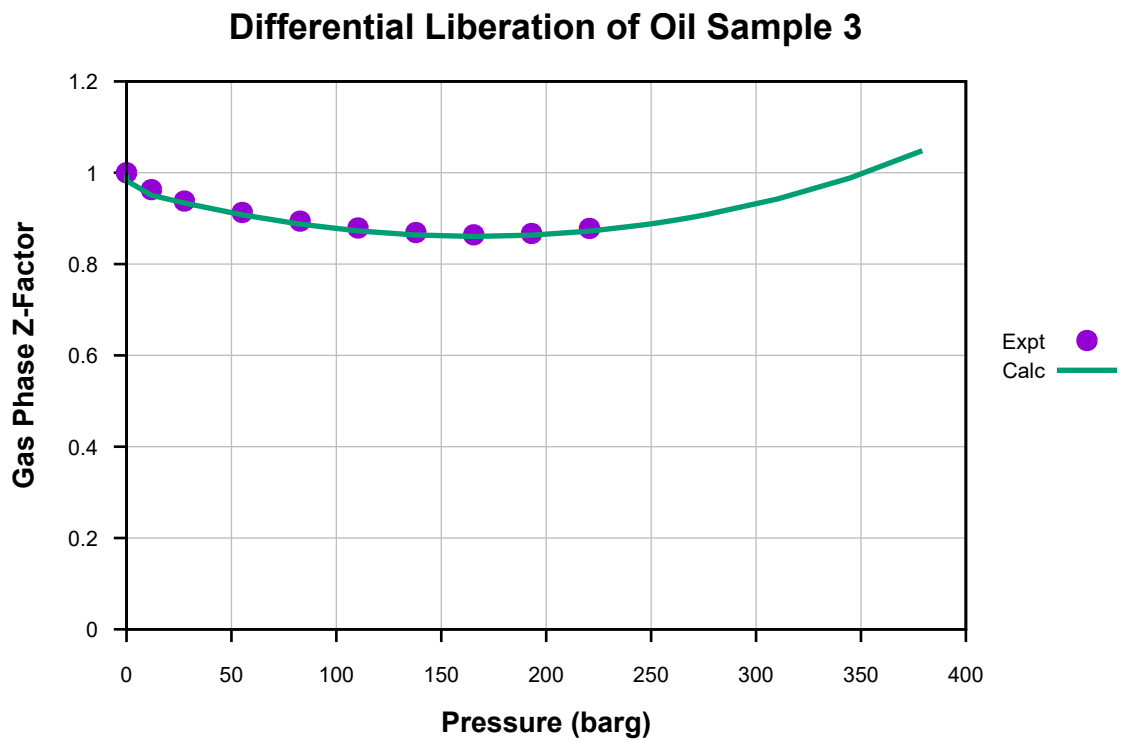


Figure 47: Gas Phase Z-Factor vs. Pressure for Differential Liberation of Oil Sample 3.

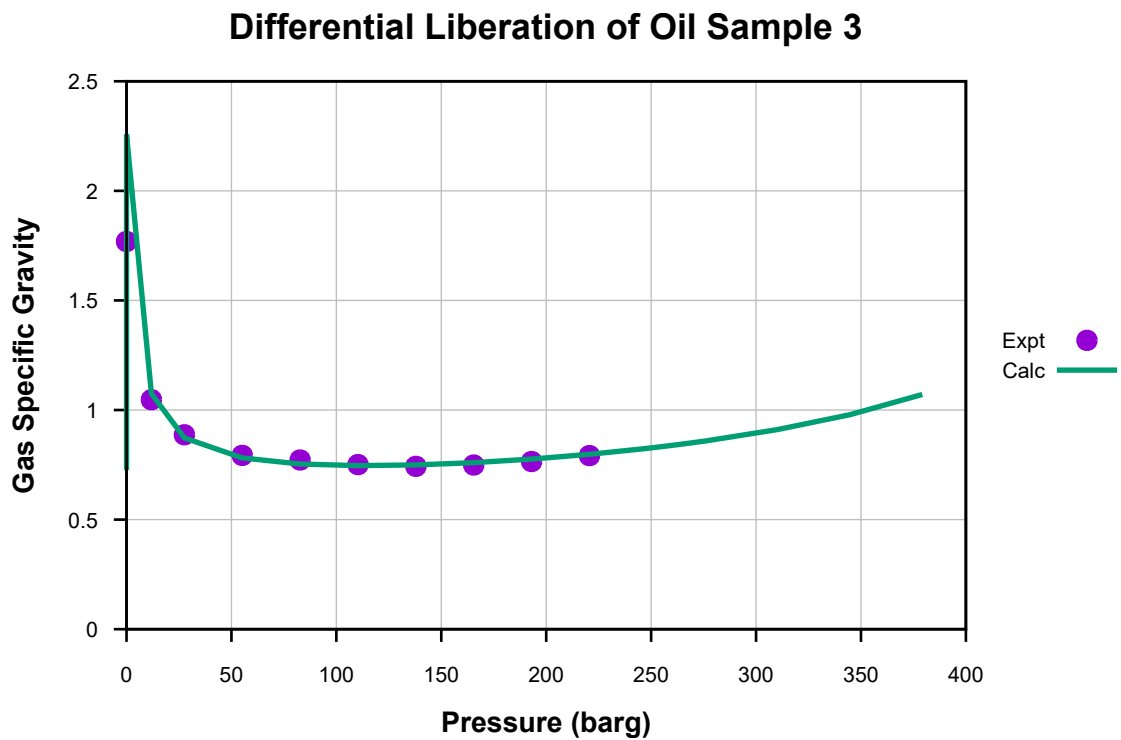


Figure 48: Gas Specific Gravity vs. Pressure for Differential Liberation of Oil Sample 3.

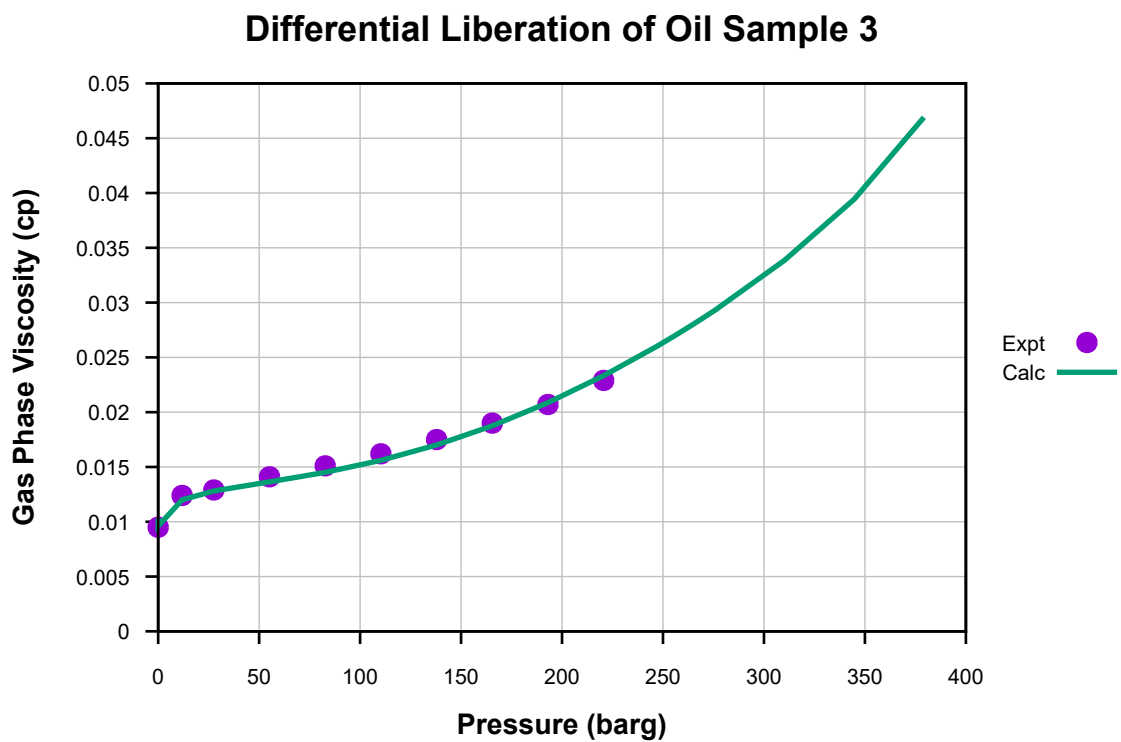


Figure 49: Gas Phase Viscosity vs. Pressure for Differential Liberation of Oil Sample 3.

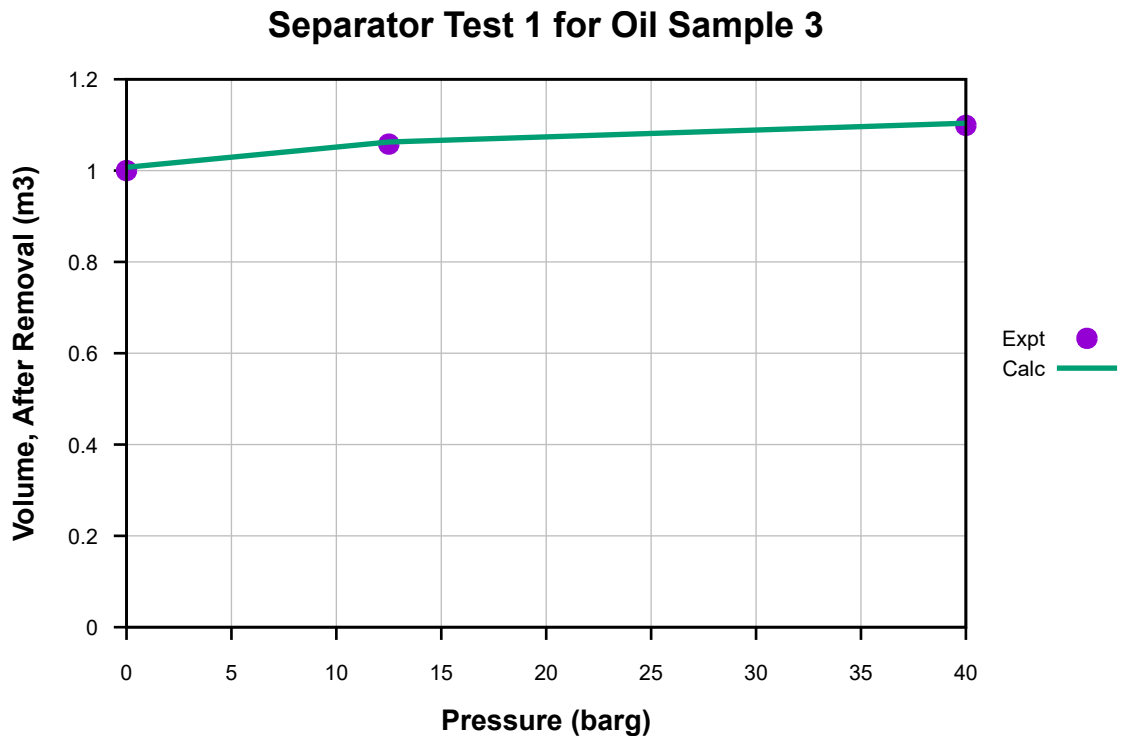


Figure 50: Volume, After Removal, vs. Pressure for Separator Test 1 for Oil Sample 3.

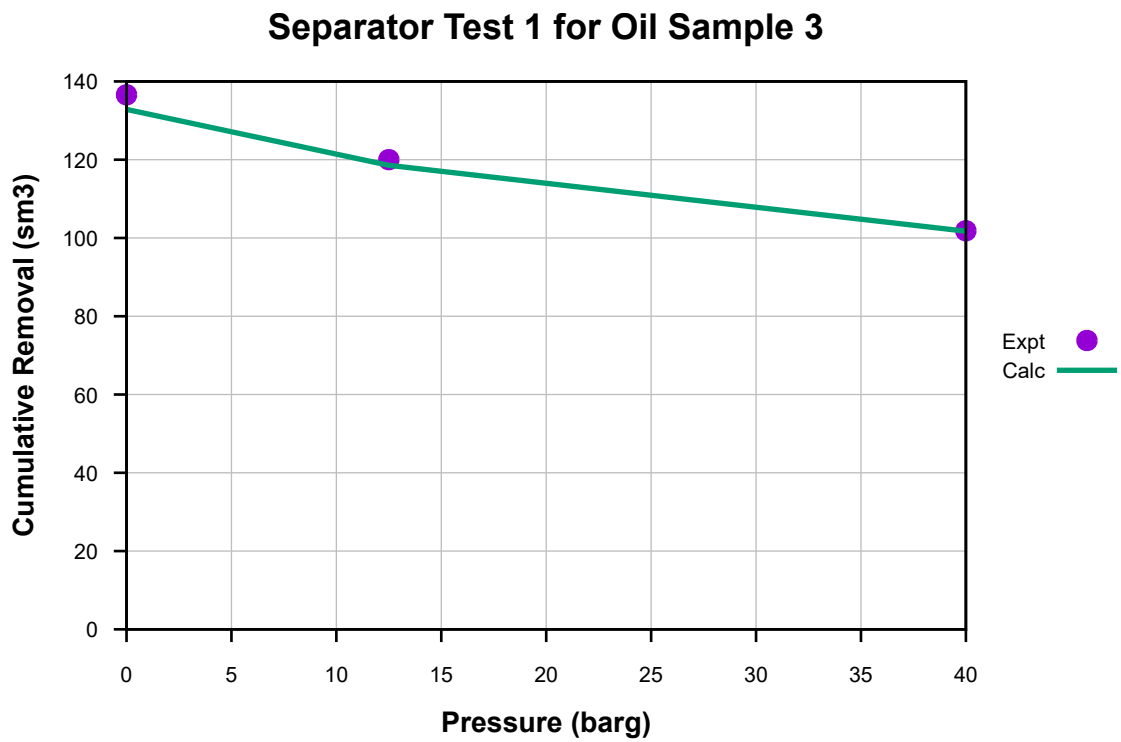


Figure 51: Cumulative Removal vs. Pressure for Separator Test 1 for Oil Sample 3.

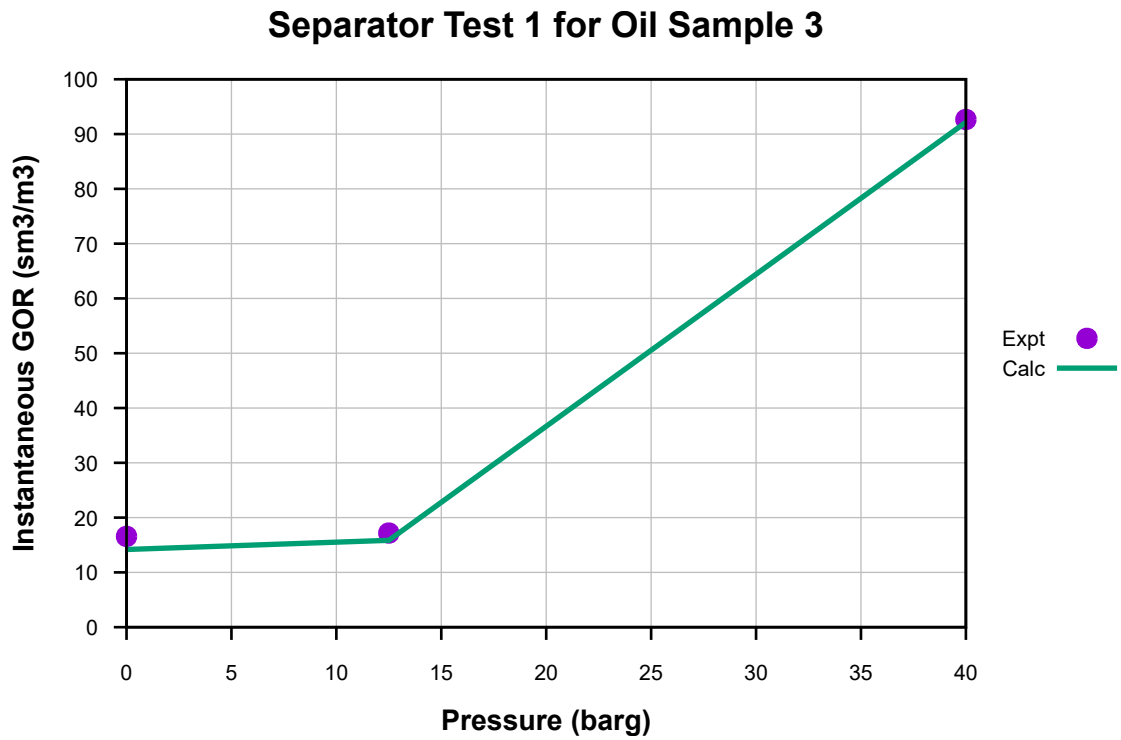


Figure 52: Instantaneous GOR vs. Pressure for Separator Test 1 for Oil Sample 3.

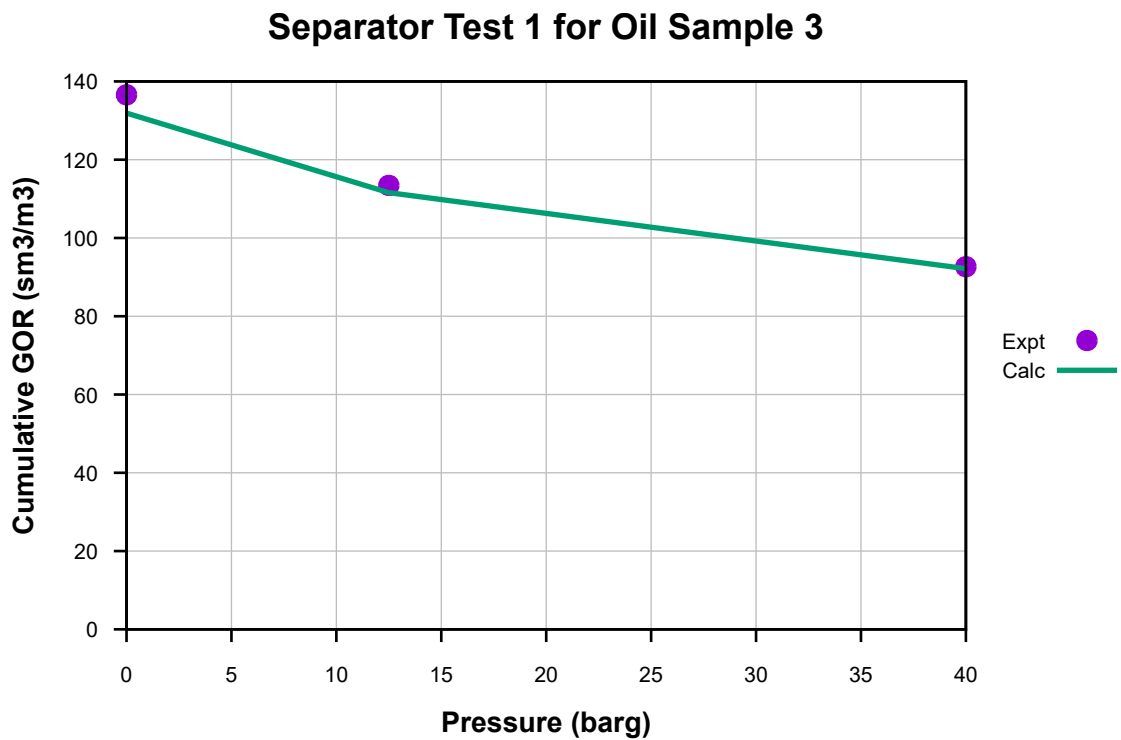


Figure 53: Cumulative GOR vs. Pressure for Separator Test 1 for Oil Sample 3.

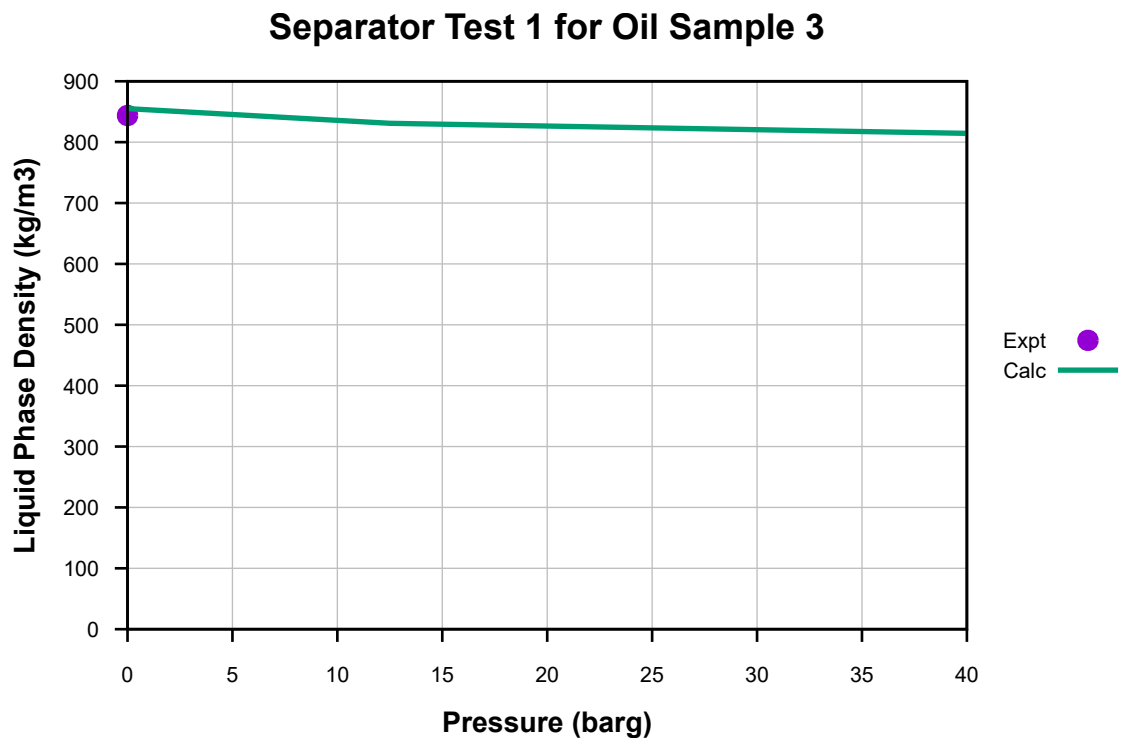


Figure 54: Liquid Phase Density vs. Pressure for Separator Test 1 for Oil Sample 3.

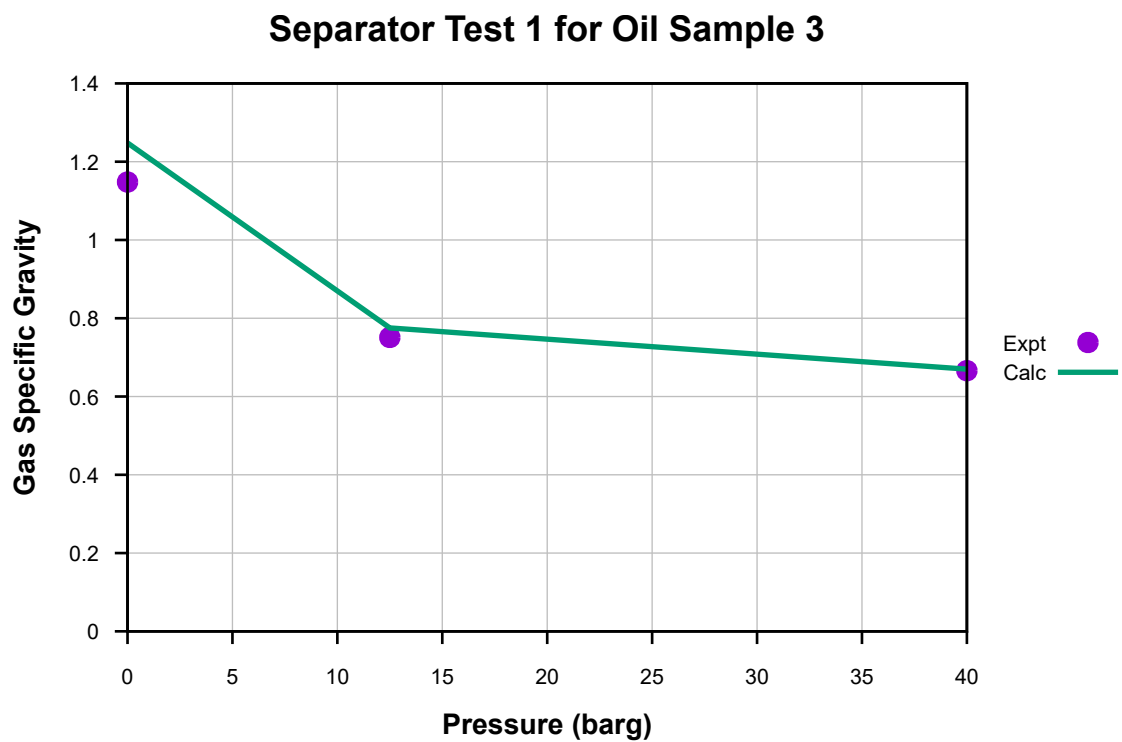


Figure 55: Gas Specific Gravity vs. Pressure for Separator Test 1 for Oil Sample 3.

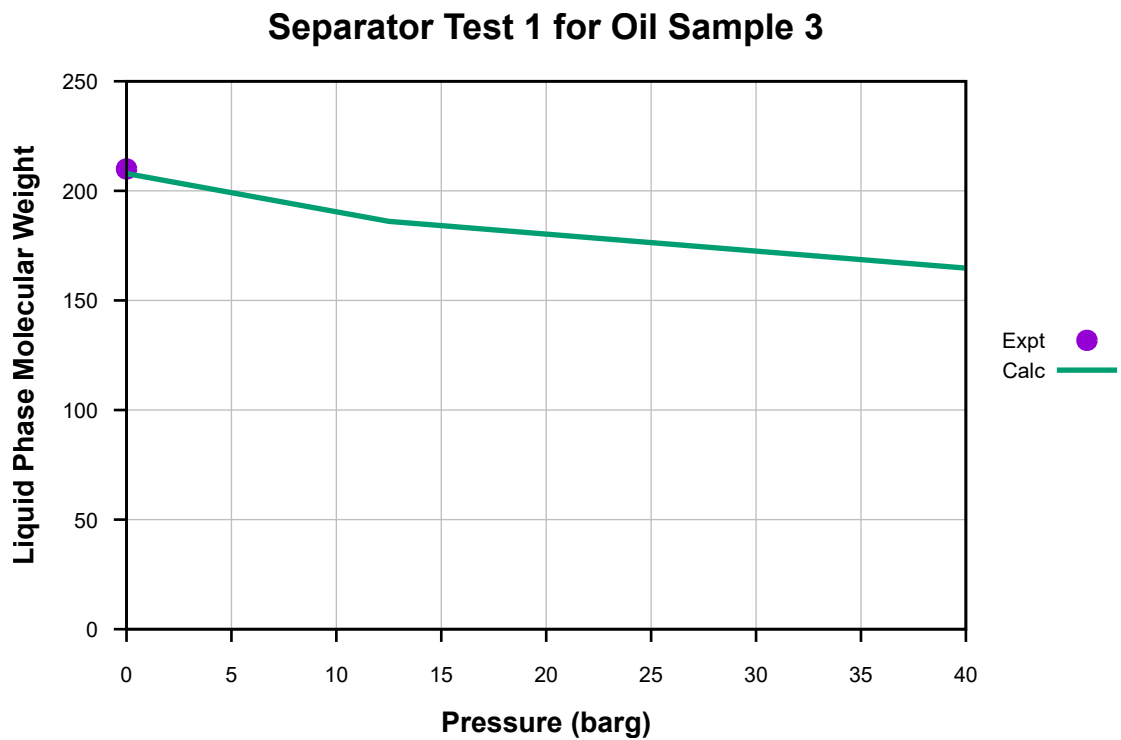


Figure 56: Liquid Phase Molecular Weight vs. Pressure for Separator Test 1 for Oil Sample 3.

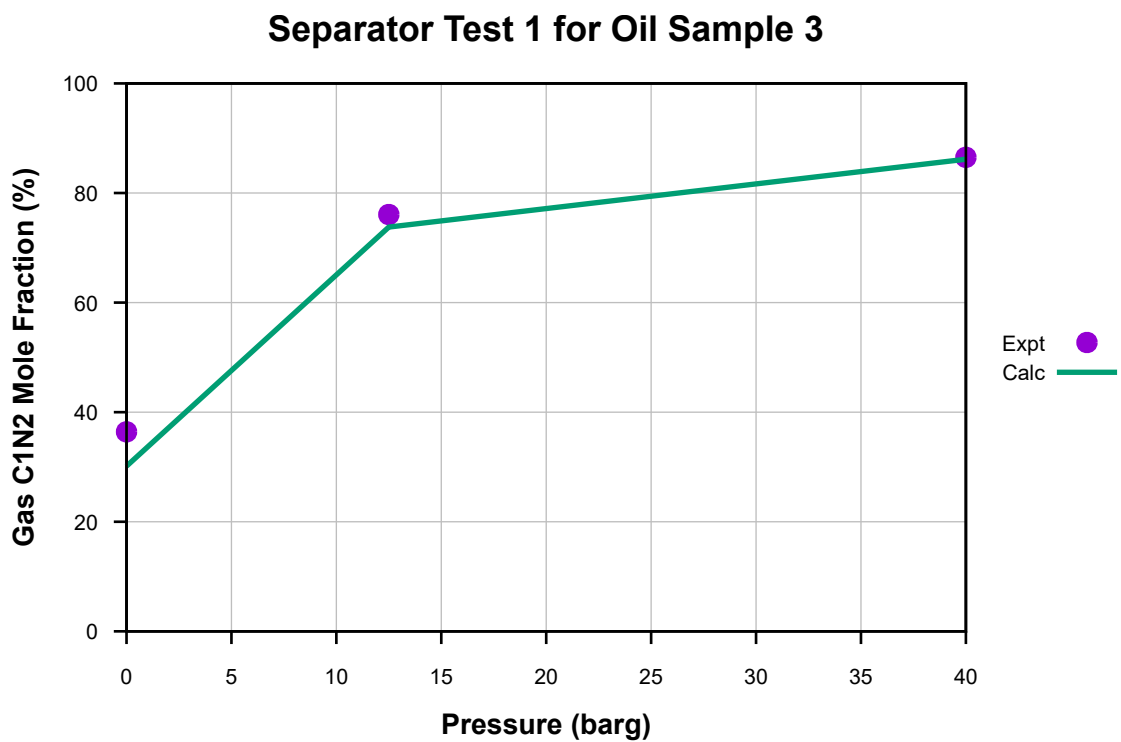


Figure 57: Gas C1N2 Mole Fraction vs. Pressure for Separator Test 1 for Oil Sample 3.

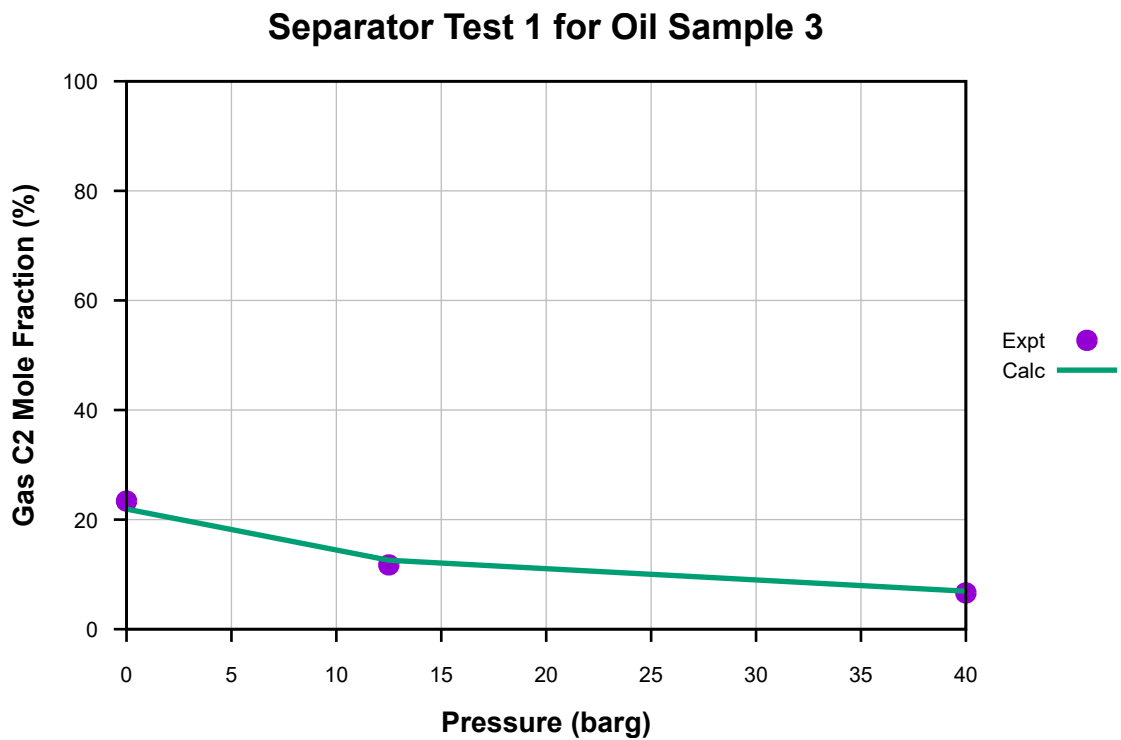


Figure 58: Gas C2 Mole Fraction vs. Pressure for Separator Test 1 for Oil Sample 3.

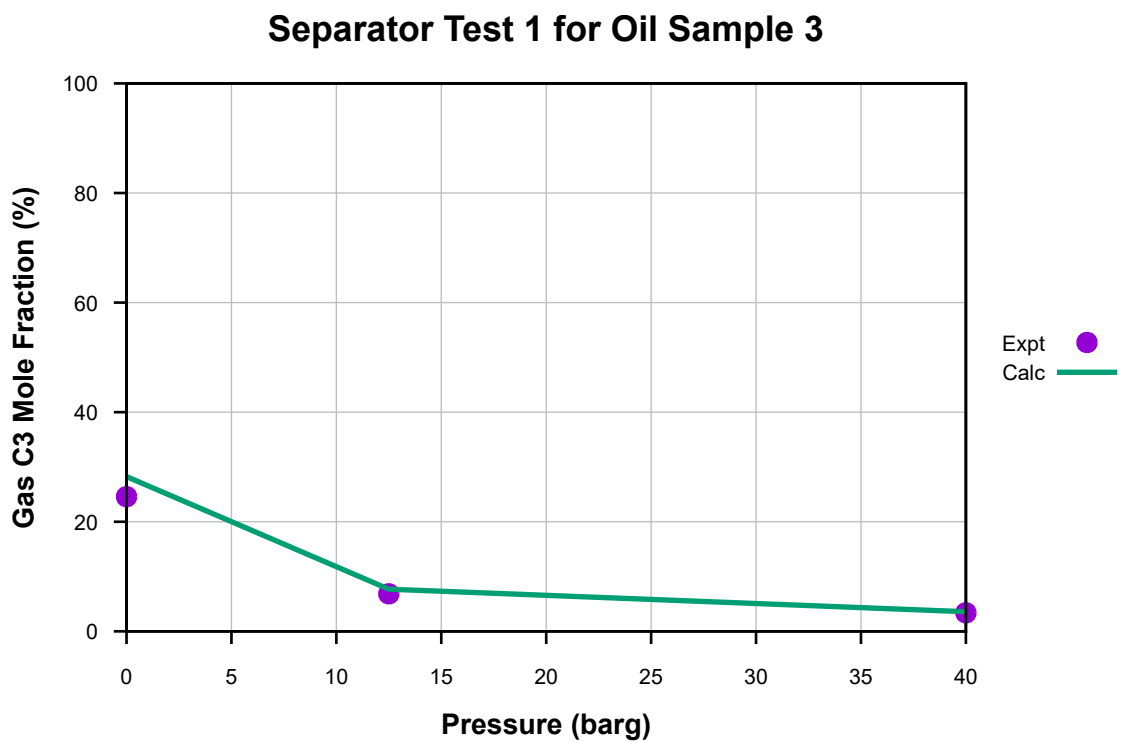


Figure 59: Gas C3 Mole Fraction vs. Pressure for Separator Test 1 for Oil Sample 3.

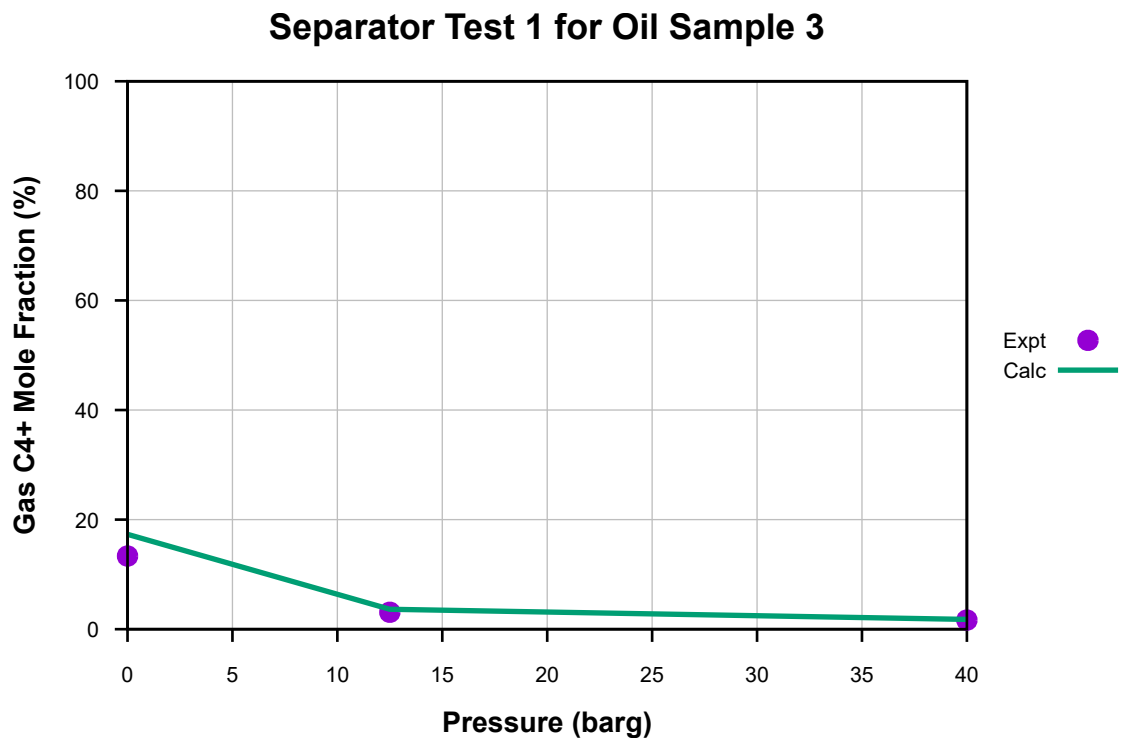


Figure 60: Gas C4+ Mole Fraction vs. Pressure for Separator Test 1 for Oil Sample 3.

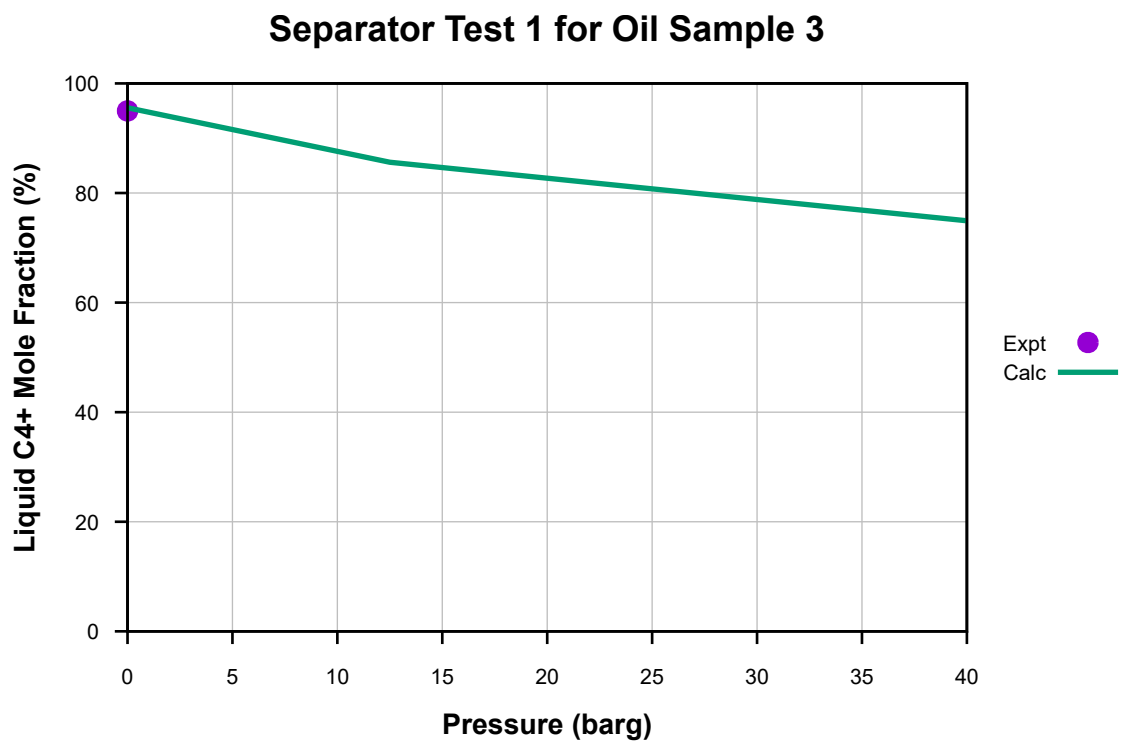


Figure 61: Liquid C4+ Mole Fraction vs. Pressure for Separator Test 1 for Oil Sample 3.

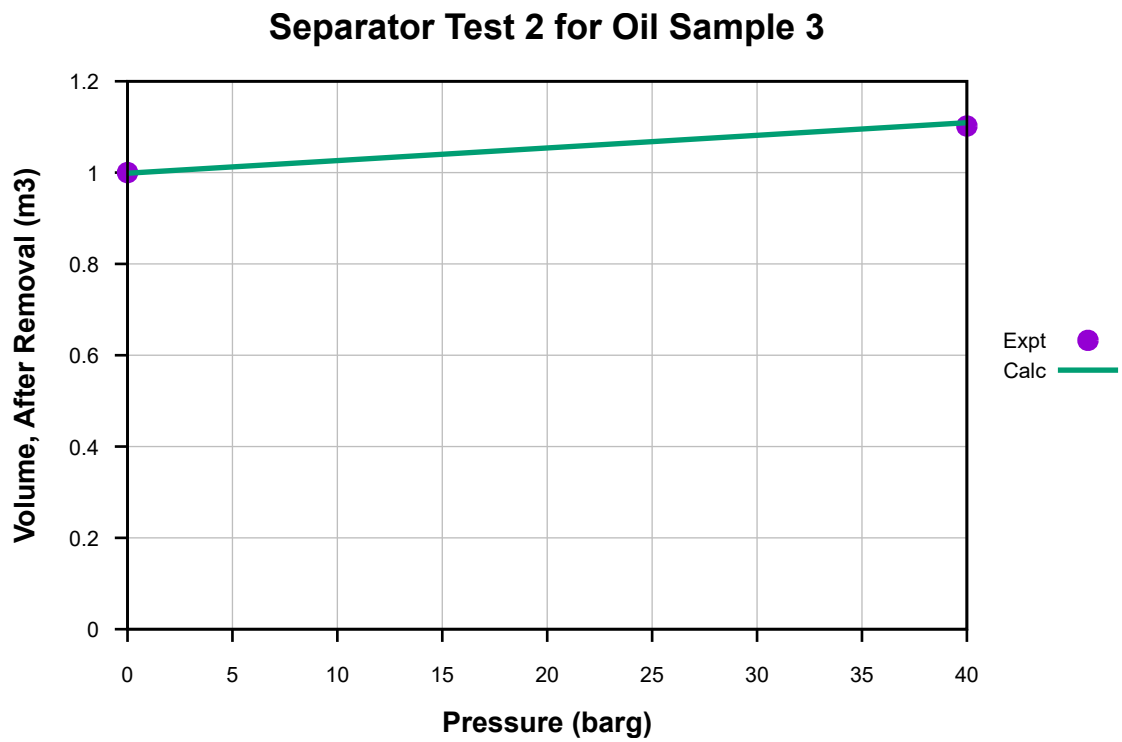


Figure 62: Volume, After Removal, vs. Pressure for Separator Test 2 for Oil Sample 3.

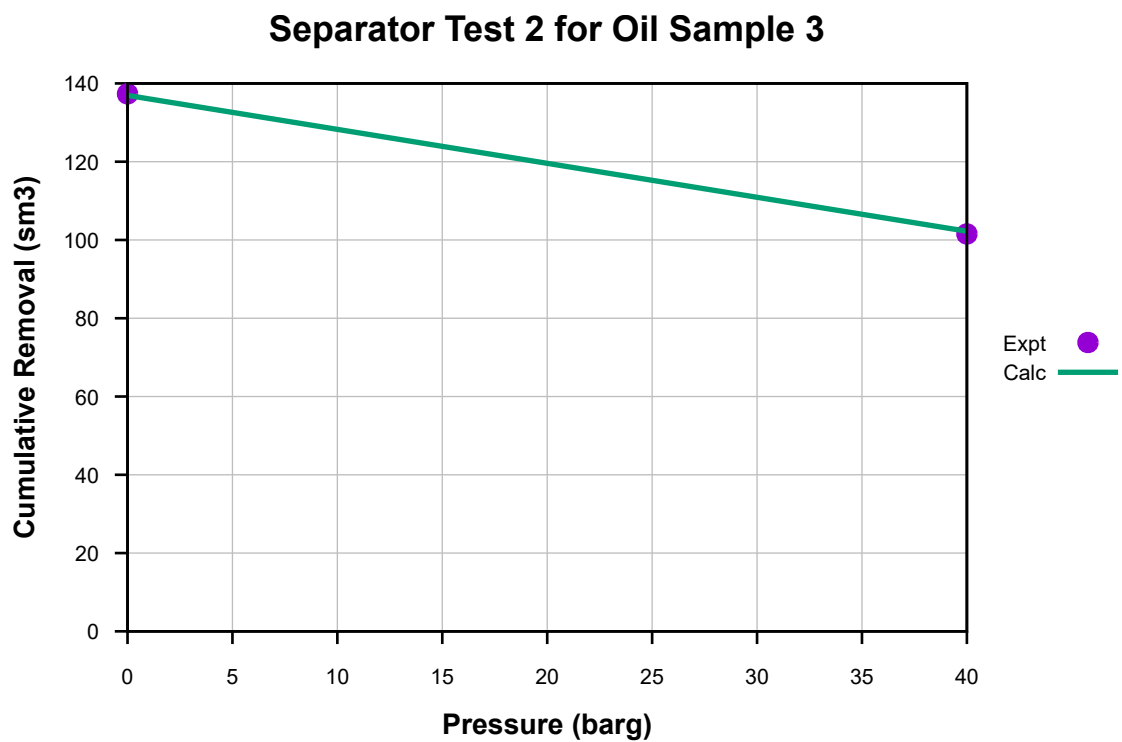


Figure 63: Cumulative Removal vs. Pressure for Separator Test 2 for Oil Sample 3.

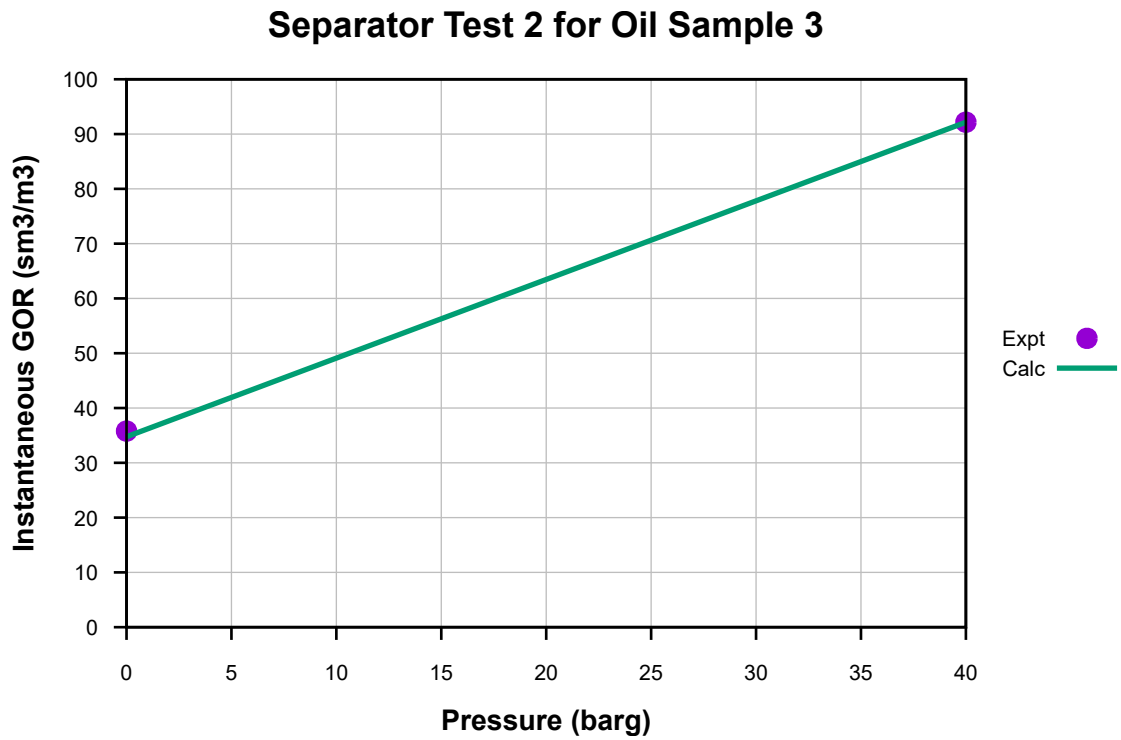


Figure 64: Instantaneous GOR vs. Pressure for Separator Test 2 for Oil Sample 3.

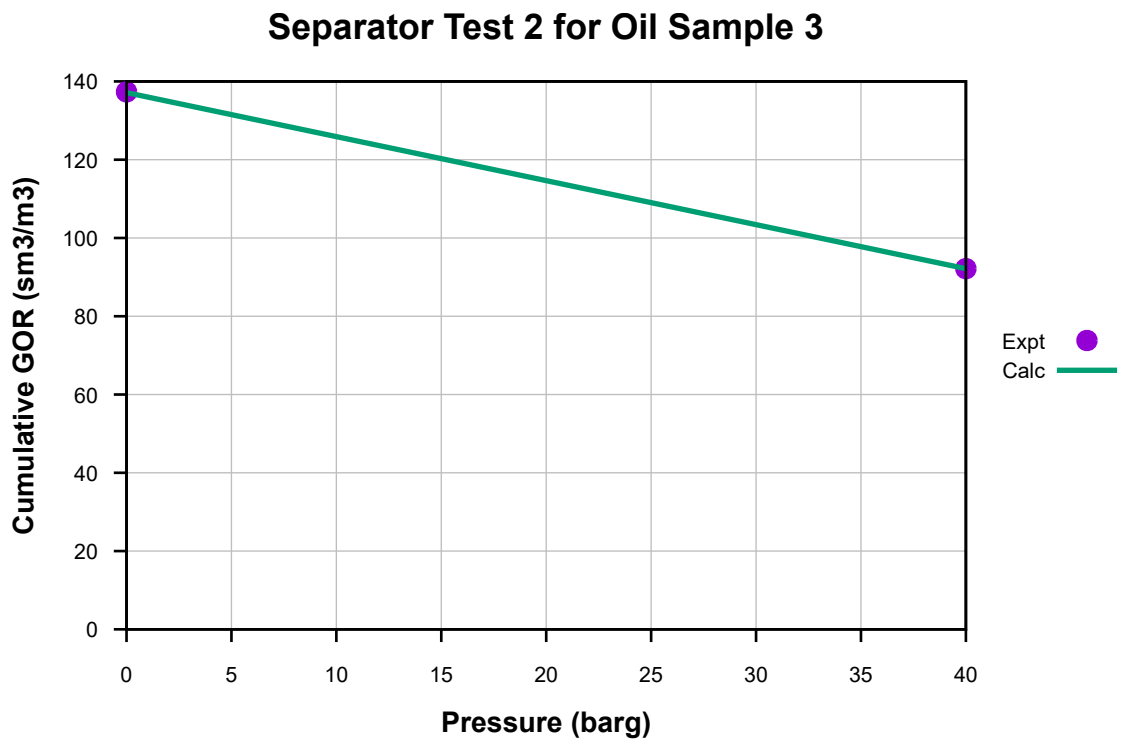


Figure 65: Cumulative GOR vs. Pressure for Separator Test 2 for Oil Sample 3.

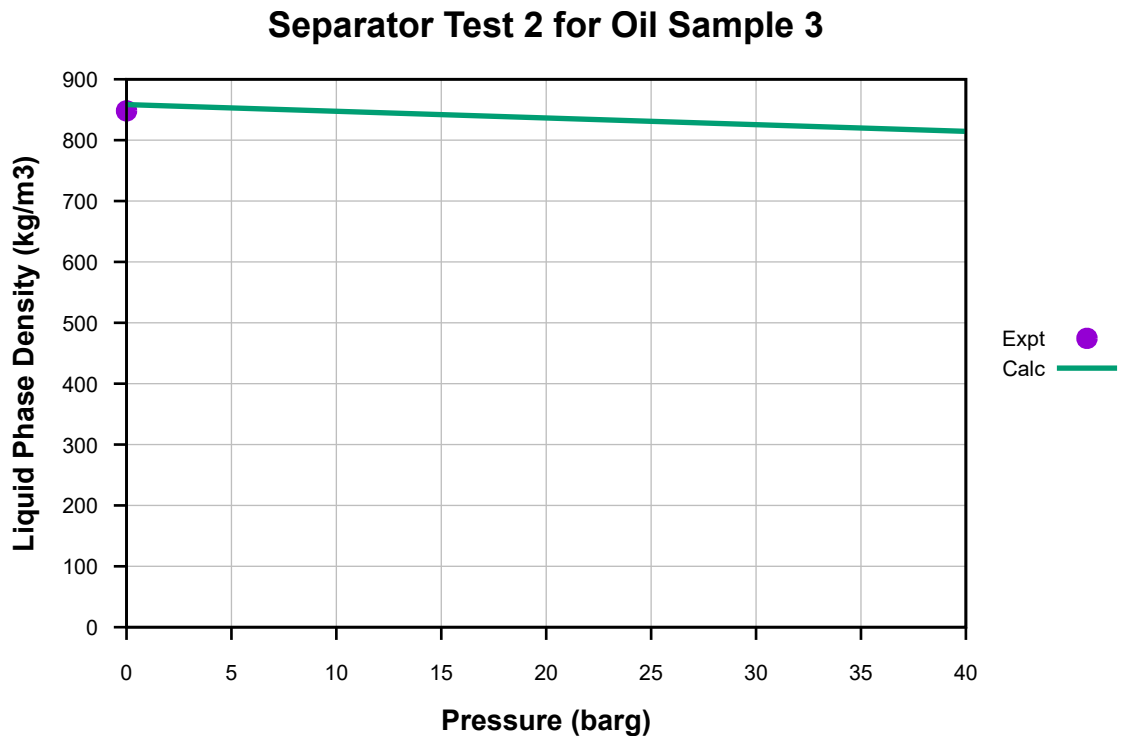


Figure 66: Liquid Phase Density vs. Pressure for Separator Test 2 for Oil Sample 3.

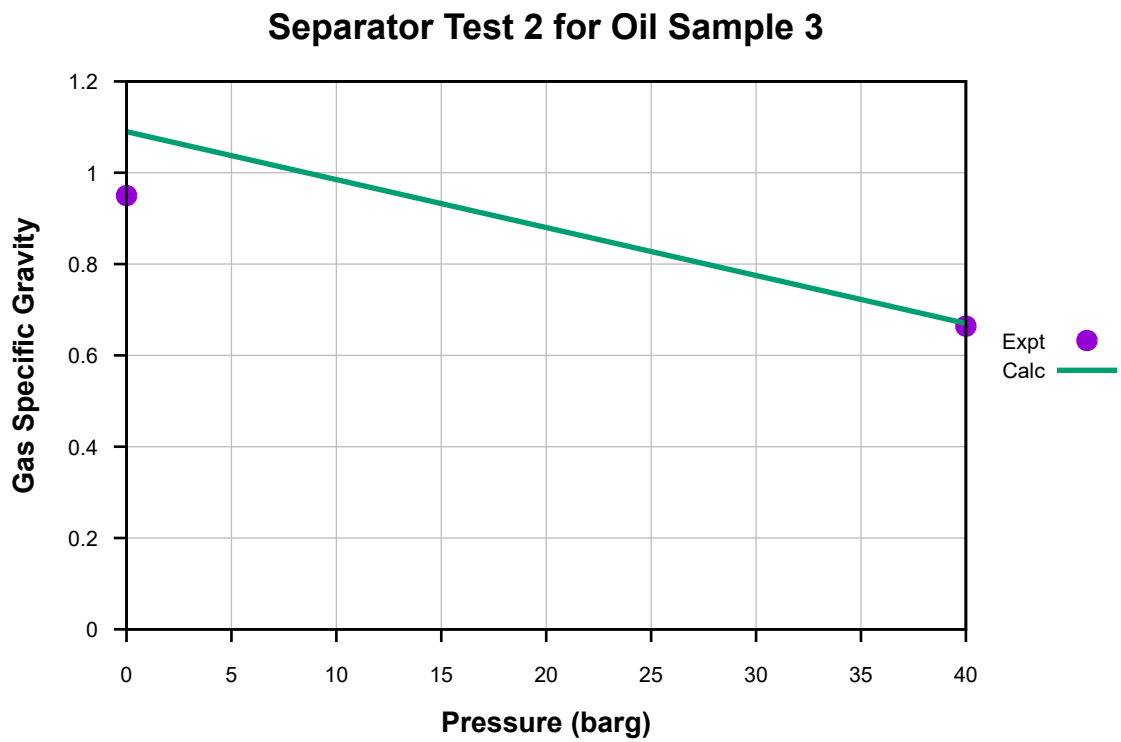


Figure 67: Gas Specific Gravity vs. Pressure for Separator Test 2 for Oil Sample 3.

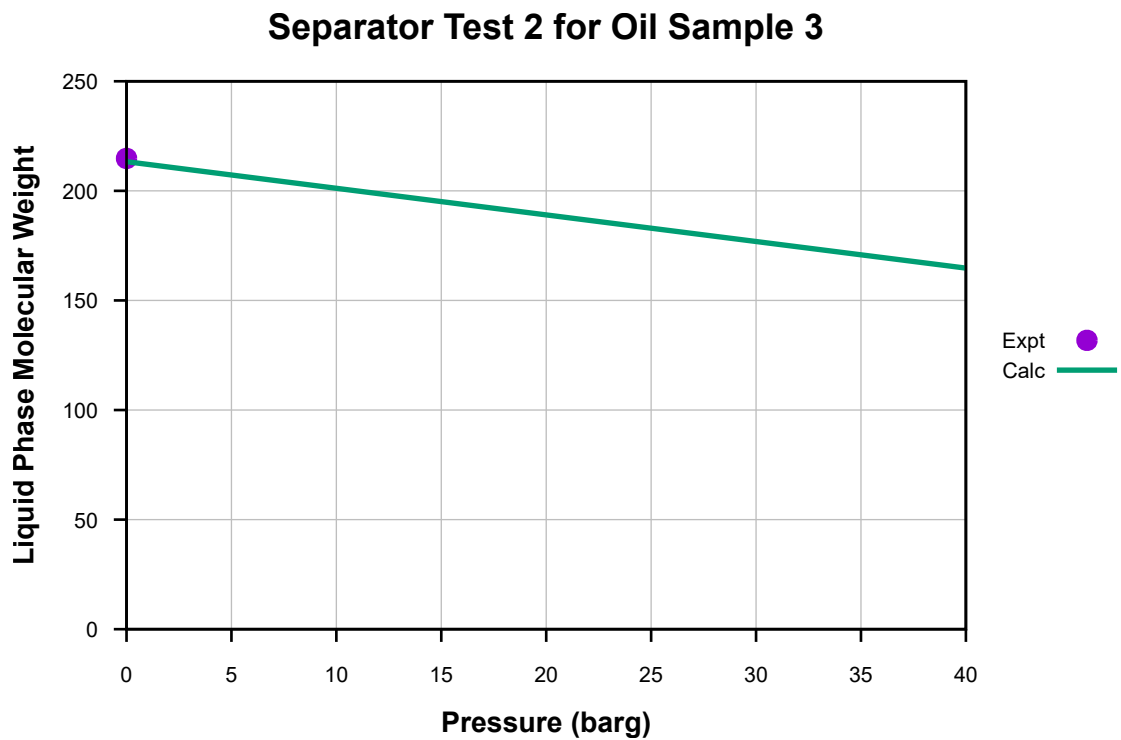


Figure 68: Liquid Phase Molecular Weight vs. Pressure for Separator Test 2 for Oil Sample 3.

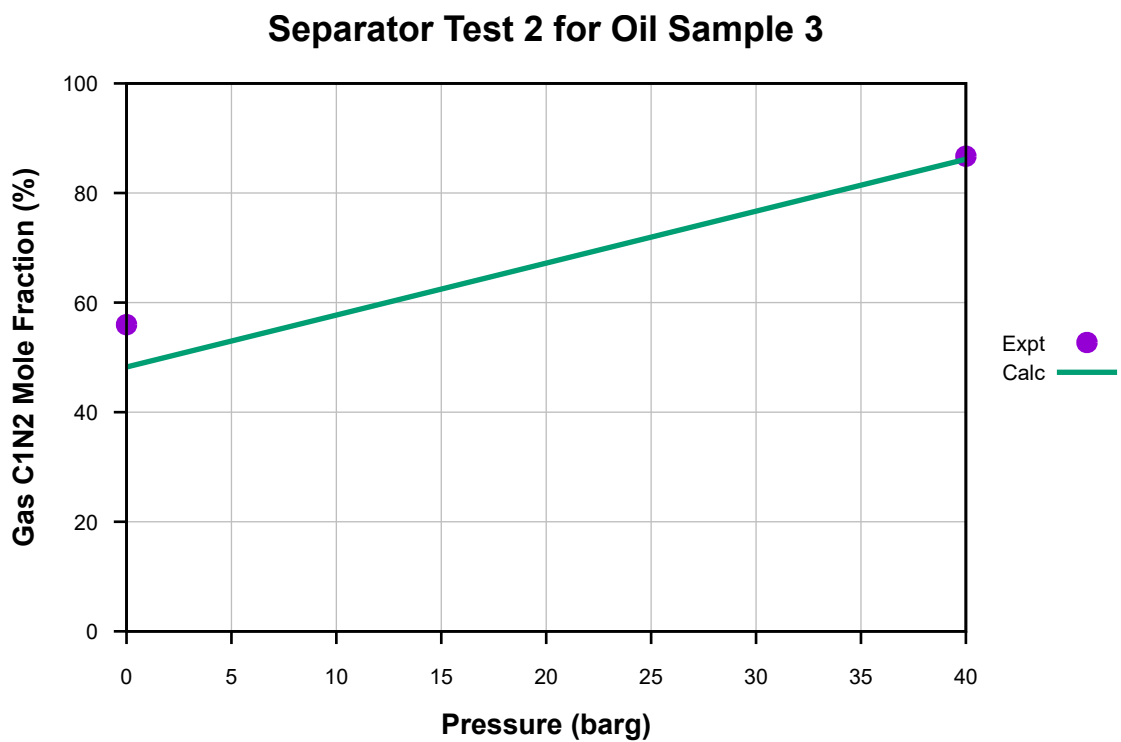


Figure 69: Gas C1N2 Mole Fraction vs. Pressure for Separator Test 2 for Oil Sample 3.

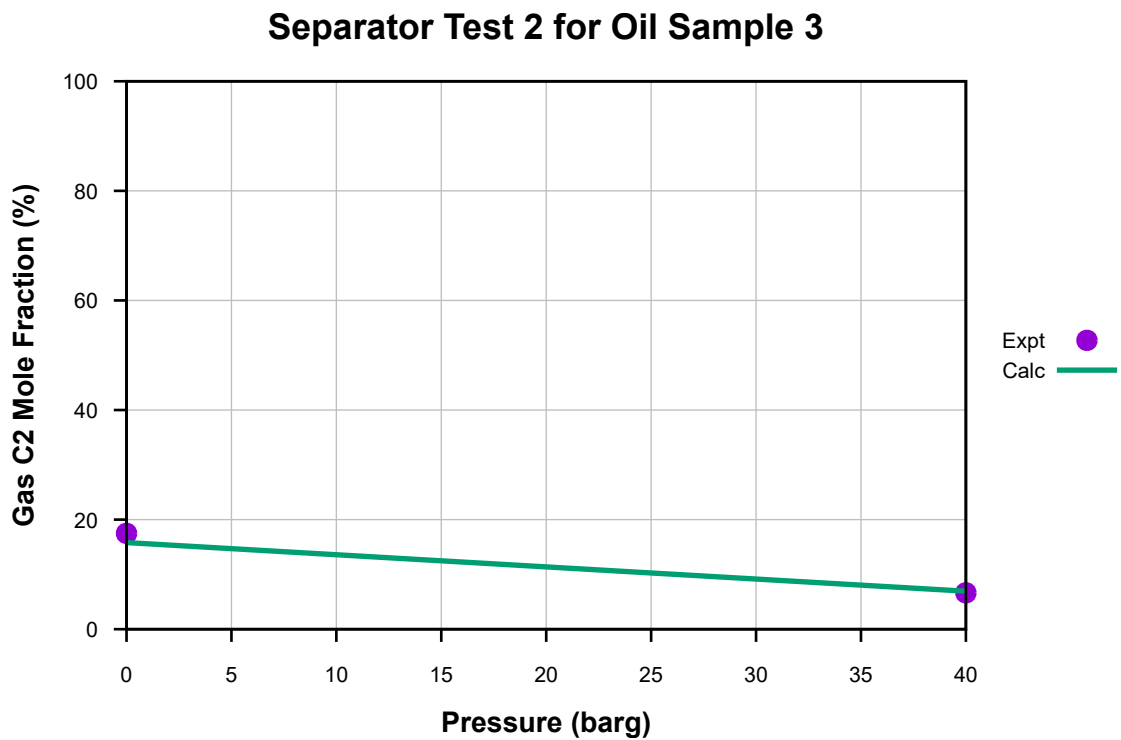


Figure 70: Gas C2 Mole Fraction vs. Pressure for Separator Test 2 for Oil Sample 3.

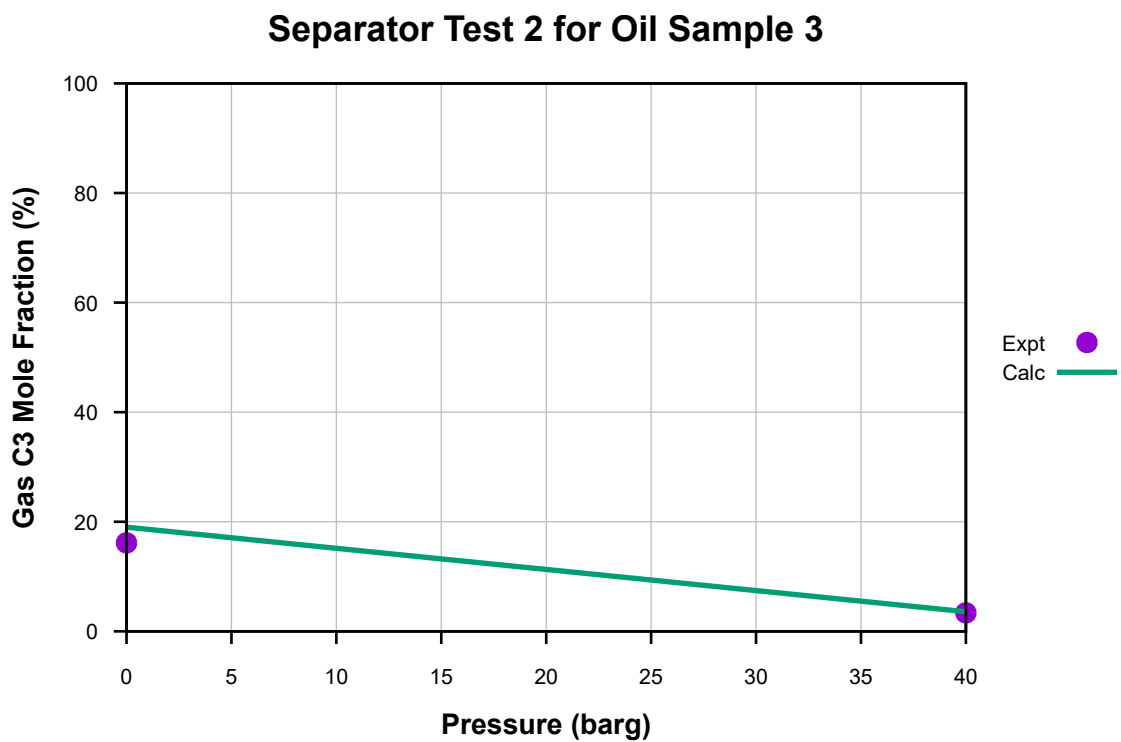


Figure 71: Gas C3 Mole Fraction vs. Pressure for Separator Test 2 for Oil Sample 3.

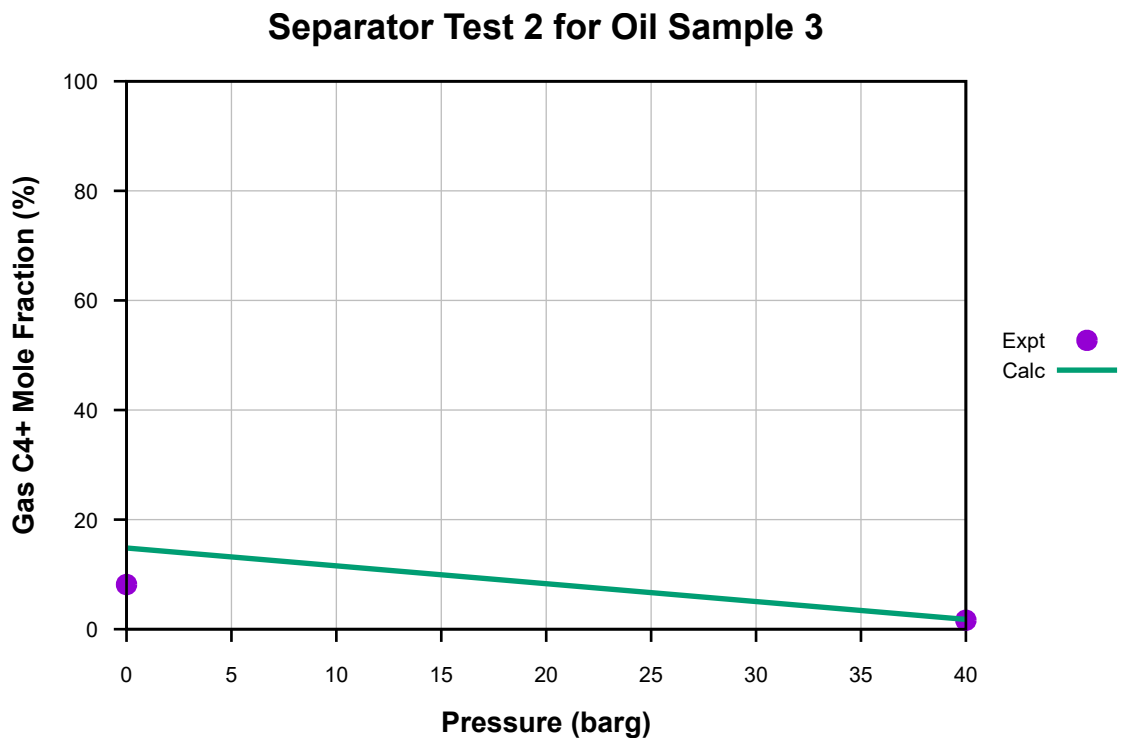


Figure 72: Gas C4+ Mole Fraction vs. Pressure for Separator Test 2 for Oil Sample 3.

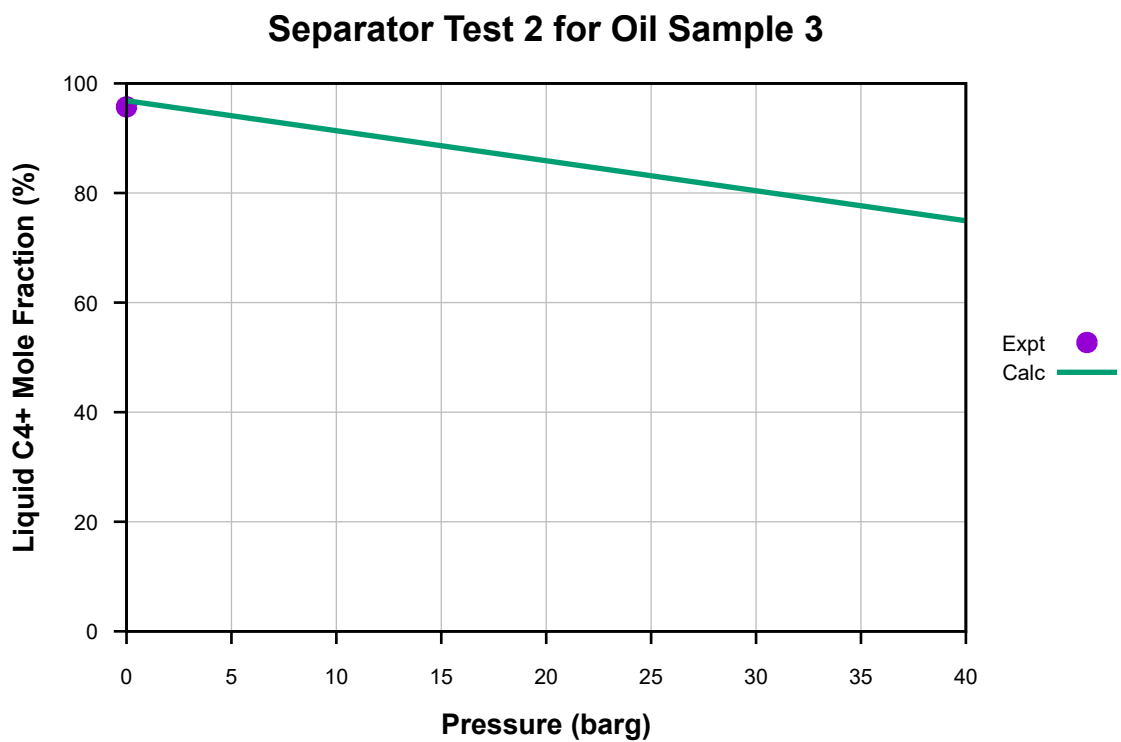


Figure 73: Liquid C4+ Mole Fraction vs. Pressure for Separator Test 2 for Oil Sample 3.

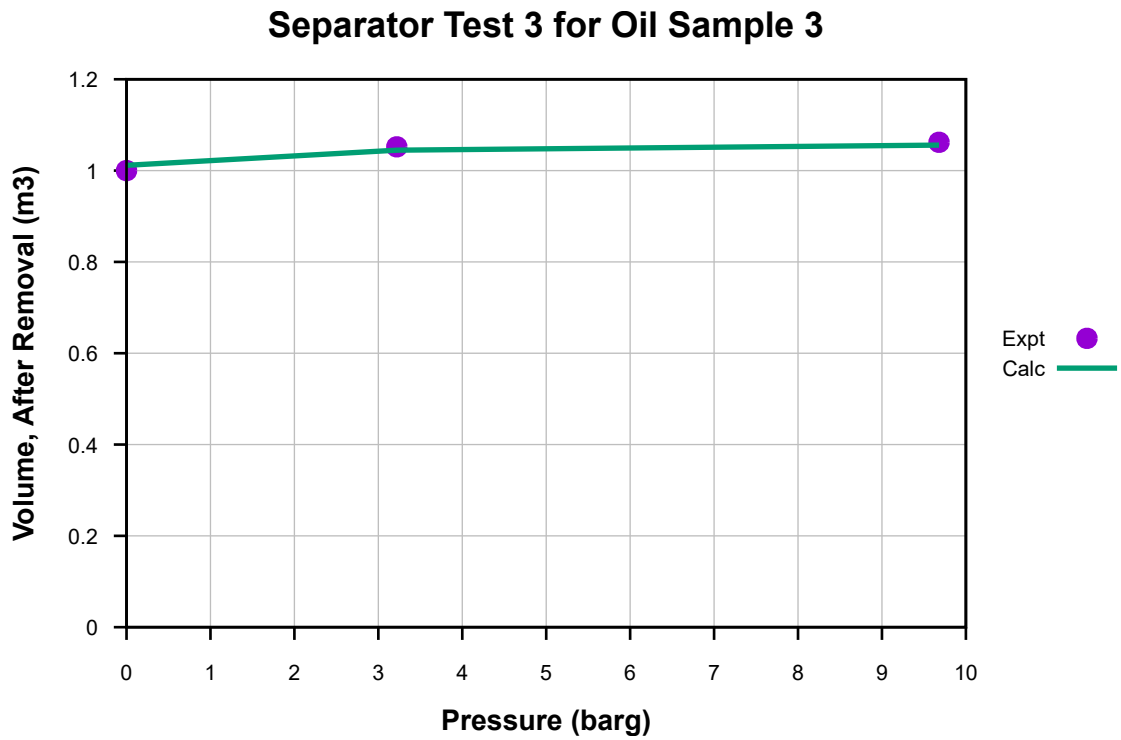


Figure 74: Volume, After Removal, vs. Pressure for Separator Test 3 for Oil Sample 3.

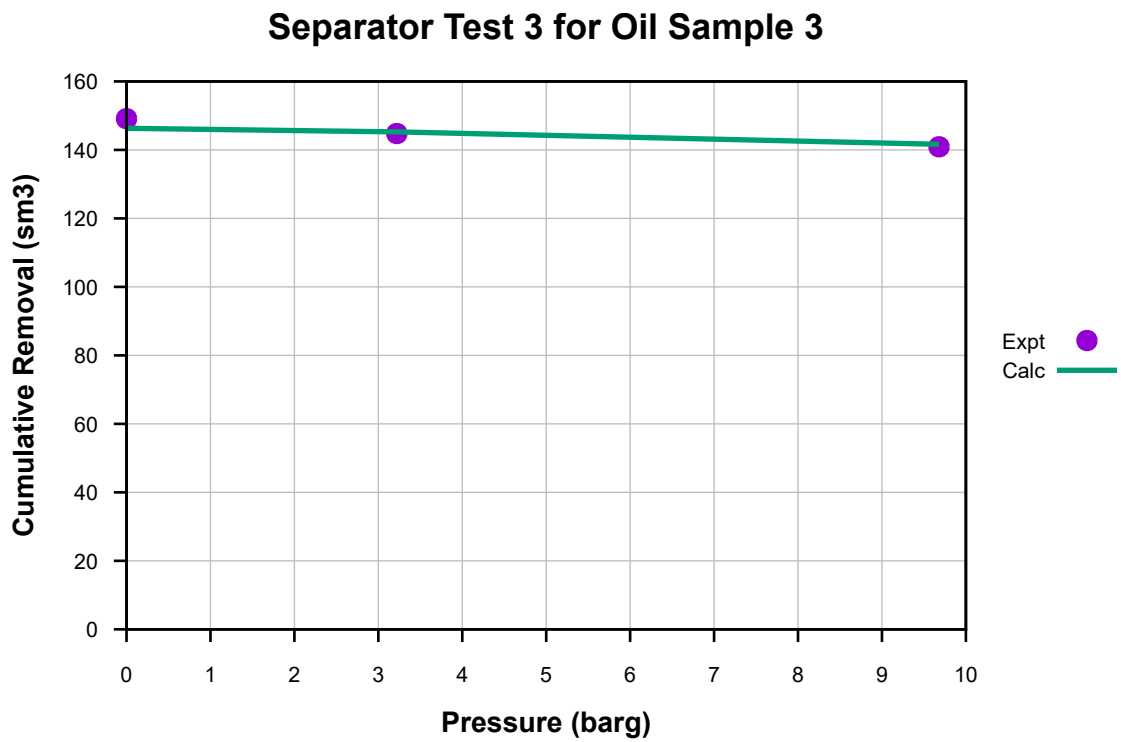


Figure 75: Cumulative Removal vs. Pressure for Separator Test 3 for Oil Sample 3.

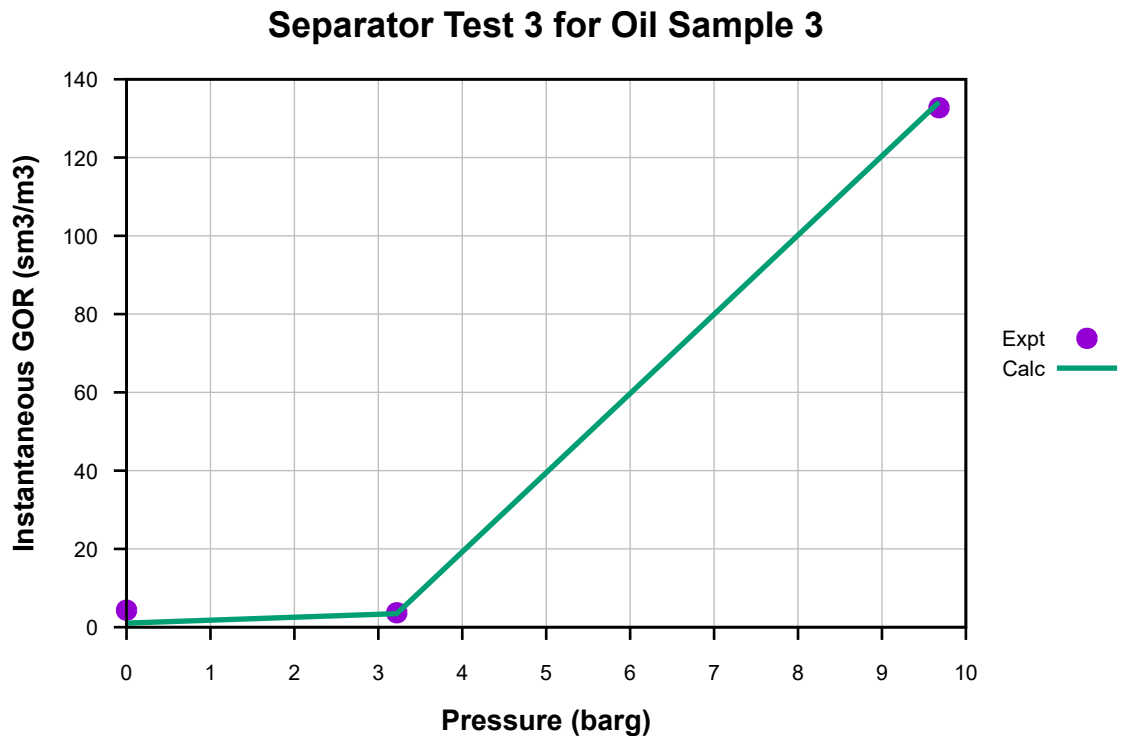


Figure 76: Instantaneous GOR vs. Pressure for Separator Test 3 for Oil Sample 3.

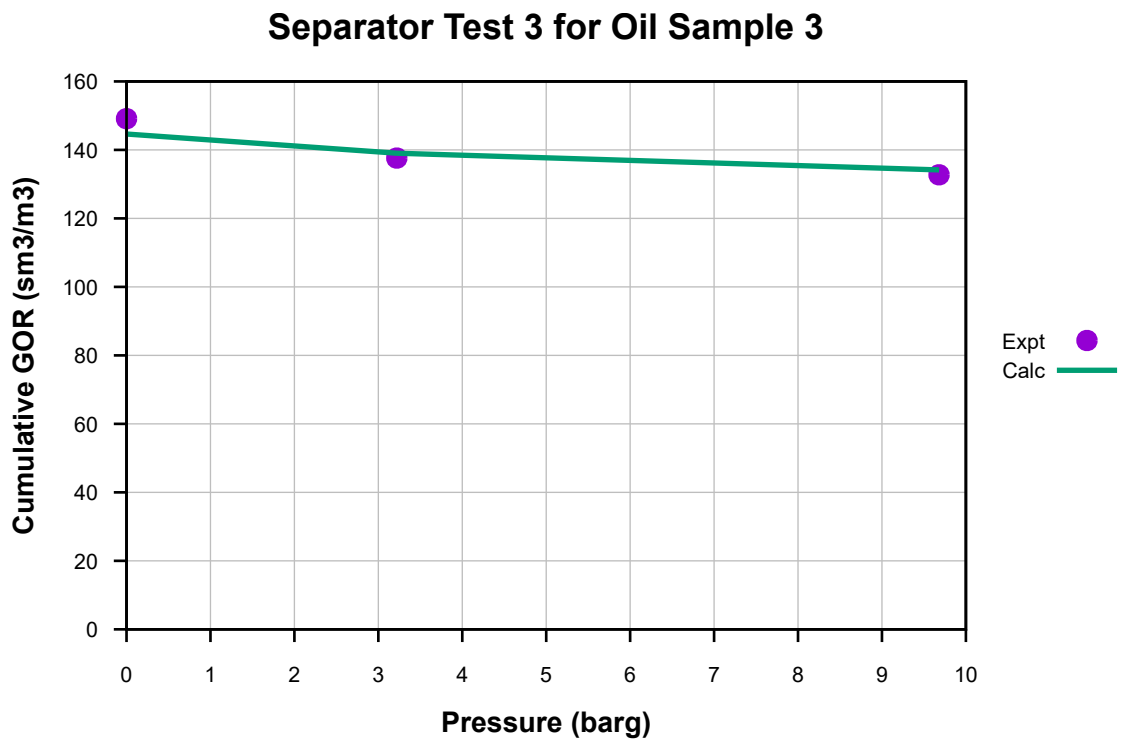


Figure 77: Cumulative GOR vs. Pressure for Separator Test 3 for Oil Sample 3.

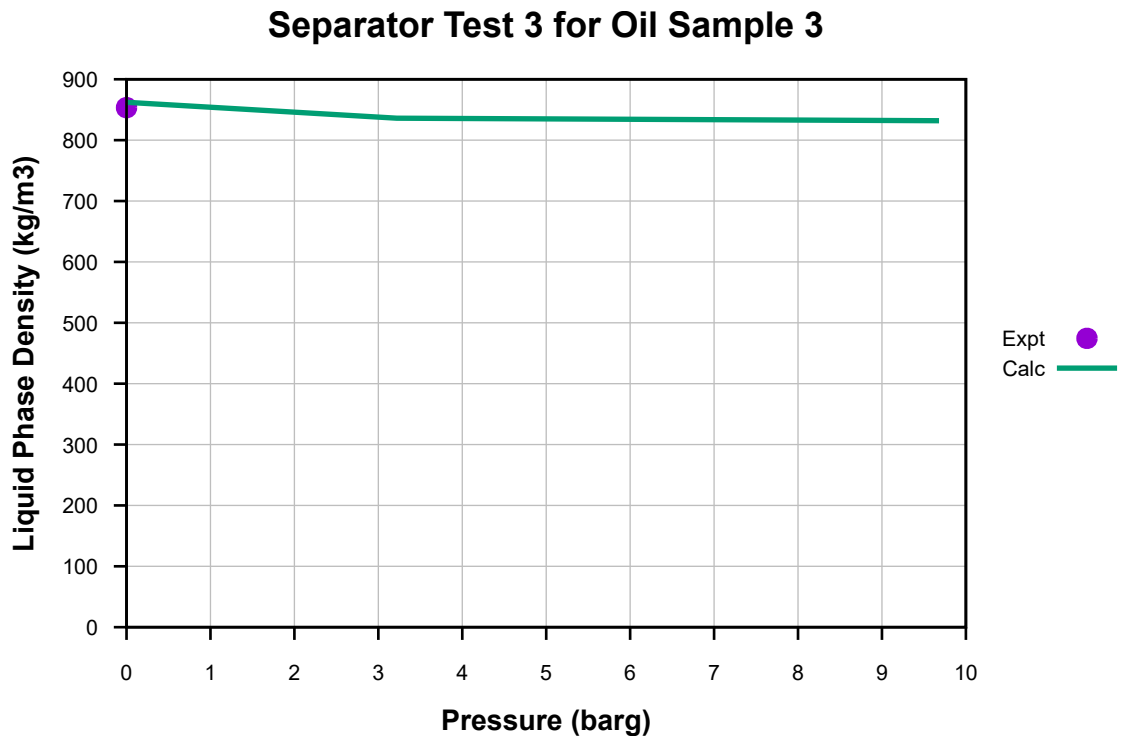


Figure 78: Liquid Phase Density vs. Pressure for Separator Test 3 for Oil Sample 3.

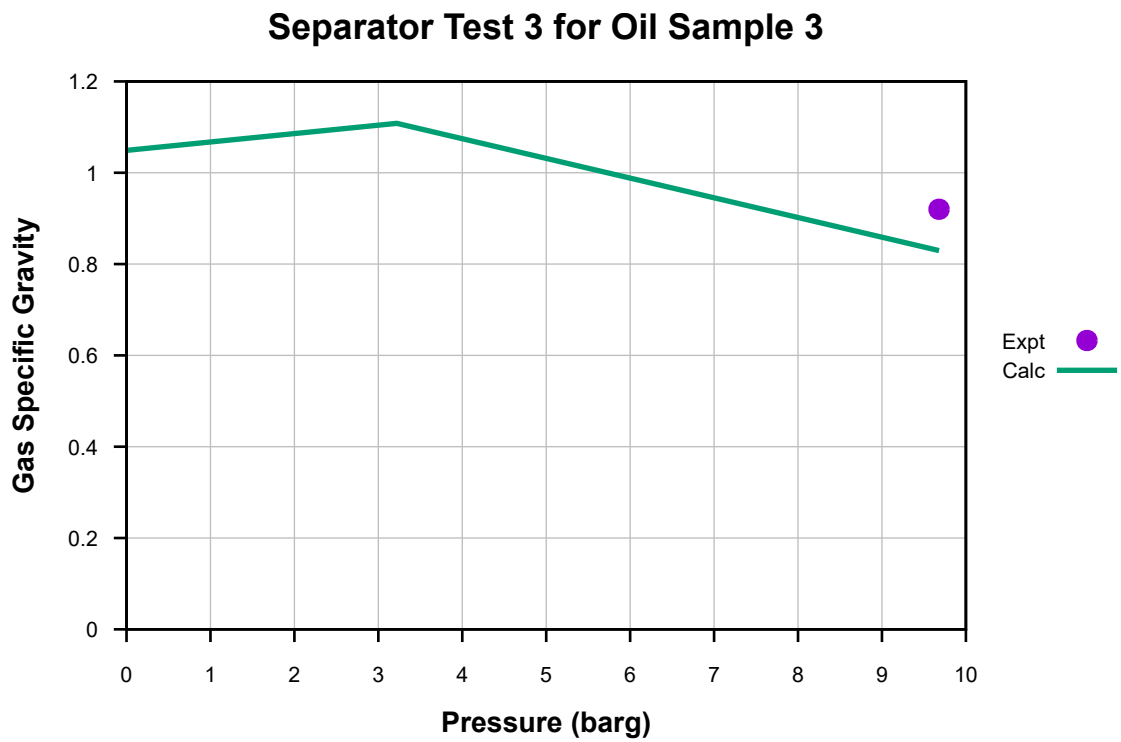


Figure 79: Gas Specific Gravity vs. Pressure for Separator Test 3 for Oil Sample 3.