CHAPTER V

RESULTS OF CALCULATION

Based on pure component classification of 5 group in Chapter 3 ,the binary mixtures studied in this work is devided into 13 groups.

The following list is a guide for using the tables.

Pure Substance

Group	Compounds
1	Water , 1,2 Propanediol , Acetic acid ,Propionic acid
2	Hydrochloric acid , Diethlamine , Ethanol , Methanol , Phenol , Pyridine , Ammonia , 2-Propanol , 1-Propanol , 1- Ocatanol , 1- Butanol , 2- Butanol , tert - butyl alcohol Hydrogen sulfide
3	Methyl Ethyl Ketone, Acetone ,Nitromethane , Ethyl acetate Methyl acetate , Isopropyl acetate, Methyl formate , Ethyl formate , Vinyl acetate , Triethylamine , Acetonitile Diethyl Ether , Acetaldehyde
4	Chloroform , 1-1 Dichloroethane , 1-2 Dichloroethane
5	Carbontetrachloride , Ethane ,Propane , Butane , Hexane Heptane , Octane , Cyclohexane , Ethylcyclohexane , Chlorobenzene , Benzene , 1-Chlorobutane , Napthalene Propylene , 1-3 Butadiene , Dimethyl sulfide , Carbonyl sulfide , Carbondisulfide

Binary Systems

Group	Substances	Data points	Trange K	Prange MPa	Ref.
1&1	Water & 1-2 Propaediol	5	373	0.00512-0.08547	(Mullins et al.,1989)
		8	353	0.0023-0.04139	(Mullins et al.,1989)
1&2	Water& HCl	3	253-273	0.0001573-0.0009356	(Miller,1983)
	Water& Ethanol	5	372.4	0.1013	(Ikarl et al.,1985)
	Water &Ethanol	8	350	0.1013	(Ikarl et al.,1985)
	Water & 1-Propanol	8	350	0.1013	(Ikarl et al.,1985)
	Water & 2- Propanol	8	350	0.1013	(Ikarl et al.,1985)
	Propionic acid & Phenol	6	383.2-403.2	0.01507-0.05713	(Cunningham and Jones, 1990)
	Water & Ammonia	7	313.5	0.10366-0.03177	Blasdel, Poling and Manley,(1987)
	Water & Methanol	8	373	0.1013	(Cunningham and Jones, 1990)
2&2	Diethylamine & Methanol	9	348.09	0.14-0.1486	Bigg,Banerjee and Doraiswamy, (1988)
	Methanol & Ethanol	12	339.2-349.6	0.0523-0.06570	(Bigg et al.,1988)
	Methanol & 1- Octanol	2	437.95	0.1013	(Conti and Gilmont, 1995)
	Ethanol & 1- Octanol	2	403.52-452.19	0.1013	(Conti and Gilmont, 1995)
	Pyridine & Methanol	4	413.2	0.2257-1.062	(Blasdel et al.,1987)

Group	Substances	Data points	Trange K	Prange MPa	Ref.
1&3	Water & Methyl Ethyl Ketone	7	298	0.1013	(Nagata , 1972)
		4	357-370.6	0.1013	Moon ,Ochi ,and Kojima , (1995)
	Water & Methyl Acetate	5	298	0.1013	(Ikarl et al . ,1985)
	Water & Ethyl acetate	8	298	0.1013	(Ikarl et al . ,1985)
	Water & Acetone	4	298	0.1013	(Ikarl et al . ,1985)
	Acetic acid & Ethyl acetate	8	343.2-373	0.03273-0.2023	(Cunningham and Jones , 1990)
	Acetic acid & Triethylamine	2	330.2	0.0344-0.036	(Cunningham and Jones , 1990)
2&3	Methanol & Acetone	7	328.92-332.11	0.1013	(Gultekin ,1990)
	Ethanol & Acetonitle	6	293.15-393.15	0.009586-0.4493	(Baker and Roth ,1980)
	Ethanol & Isopropyl acetate	3	353.15	0.0948	(Cunningham and Jones , 1990)
	Diethylamine & Acetonitile	8	298	0.01624-0.02820	(Srivastava and Buford , 1985)
		3	308	0.02067-0.02735	(Blasdel et al . ,1987)
	Phenol & Methyl Ethyl Ketone	7	393.2-413.2	0.019-0.1075	(Blasdel et al . ,1987)
3&3	Methyl formate & Acetone	7	323.2-363.2	0.1452-0.5855	(Chen and Chao , 1987)
	Ethyl acetate & Triethylamine	6	273-363	0.0148-0.4682	(Blasdel et al . ,1987)
	Vinyl acetate & Methyl Ethyl Ketone	8	332.2-393.2	0.0603-0.3843	(Blasdel et al . ,1987)
	Triethylamine &Methyl Ethyl Ketone	5	293-320	0.01017-0.03465	(Blasdel et al . ,1987)

Group	Substances	Data points	Trange K	Prange MPa	Ref.
2&4	Diethylamine& Chloroform	4	335.45-336.15	0.1013	Ninov , Stefanova and Petrov , (1995)
	HCl & Dichloroetane	4	273	0.9260-2.439	(Blasdel et al . ,1987)
3&4	Acetaldehyde &1-1Dichloroethane	14	303-306	0.05212-0.09430	(Rousseau , 1987)
1&5	Carbontetrachloride & Propionic acid	4	349.41-364	0.1013	Kato,Yamaguchi and Yoshikawa , (1990)
4&5	1-2 Dichloroethane & Vinyl chloride	6	293-320	0.07529-0.6702	(Blasdel et al . ,1987)
	1,2 Dichoroethane & cyclohexane	2	352.9-354	0.1013	Mato , Gonzalez and Arroya , (1989)
	1,2 Dichloroethane & cyclohexene	2	350.6	0.1013	Mato , Gonzalez and Arroya , (1989)
2&5	Methanol & Hexane	4	298.15	0.03619-0.03634	(Hongo et al . ,1994)
	Methanol & Heptane	6	298.15	0.01950-0.2162	(Hongo et al . ,1994)
	Ethanol & Hexane	12	298.1	0.0064-0.01390	(Hongo et al . ,1994)
	Ethanol & Heptane	8	298.15	0.0113-0.01239	(Hongo et al . ,1994)
	Ethanol & Octane	4	343.15	0.0603-0.06984	(Hiaki , 1995)
	1-Propanol &Octane	4	385.15	0.05731-0.5223	(Hiaki , 1995)
	1-Butanol & Hexane	4	298.15	0.01935-0.02011	Rodriguez , Pardo and Urieta , 1993
	1-Butanol & 2-Chlorobutane	5	358.2-385.24	0.06-0.1013	(Cea et al. ,1995)

Group	Substances	Data points	Trange K	Prange MPa	Ref.
2&5	2-butanol & Hexane	3	298.15	0.01901-0.02051	(Rodriguez et al . ,1993)
	Tert-butyl alcohol & cyclohexane	5	359.6-368.4	0.1013	(Triday and Veas ,1985)
	Tert-butyl alcohol & chlorobenzene	10	328.2	0.03532-0.05442	(Hongo et al . ,1994)
	H_2S - Ethylcyclohexane	4	310.9	0.17-1.54	(Huang and Robinson , 1985)
	Methanol & Dimethyl sulfide	4	297.84	0.03614-0.06247	(Mullins et al.,1989)
	Methanol & Carbonyl sulfide	5	253.2-293.2	0.2206-0.03826	(Blasdel et al . ,1987)
	Methanol & Carbondisulfide	7	233.2-253.2	0.00048-0.00524	(Blasdel et al . ,1987)
3&5	Methyl acetate & Toluene	3	373.8-379.6	0.1013	(Wisniak and Tamir , 1989)
	Ethyl acetate & 1-chlorobutane	9	298.15	0.01345-0.1312	(Khurma et al . ,1982)
	Ethyl formate & Benzene	4	323.15	0.03865-0.05985	(Harmens ,1985)
	Acetonitile & Toluene	4	343.15	0.06970-0.07	(Monfort , 1983)
	Methyl Ethyl Ketone & p-Xylene	3	356.76-399.12	0.1013	(Wisniak and Tamir , 1989)
	Nitromethane & 1-chlorobutane	8	298.18	0.009938-0.01429	(Khurma et al . ,1982)
	Acetone & Chlorobutane	4	348.16	0.1084-0.1454	(Khurma et al . ,1982)
	Toluene & Napthalene	1	413.15	0.01491	(Chang and Gerald , 1993)

Group	Substances	Data points	Trange K	Prange MPa	Ref.
5&5	Ethane & Propane	3	270	0.531-0.547	(Claude and Jean , 1988)
	n-Hexane & n- Heptane	5	348.72-353.96	0.1013	Jan , Shiau and Tsai , (1994)
	n-Hexane & cyclohexane	2	349-351.3	0.101	(Jan et al . , 1994)
	Propane & Propylene	9	230-270	0.1135-0.5457	(Harmens ,1985)
	Benzene & Toluene	6	410.15-373.15	0.0134-0.3298	(Klara et al . ,1987)
	Napthalene & Cyclohexane	2	413.15	0.1628-0.3978	(Chang and Gerald , 1993)
	n-Heptane & Toluene	7	306.7-341.8	0.0066-0.0267	(Rousseau , 1987)
	1-3 Butadiene & Propylene	2	273.2	0.1603-0.2516	(Srivastava and Buford ,1985)

Saturation pressure for Binary systems (Pcal) and Interaction parameter (Kij) are calculated based on Quartic equation of state (QEOS) and a comparison of the accuracy (%AAD) QEOS with those widely used Peng - Robinson EOS has been made.The results of this study are shown in Table 5.1-5.70

systems studied in this work can be devided as following:

Group	Substances	Table no.
1&1	Water & 1-2 Propaediol	5.1-5.2
1&2	Water& HCl	5.3
	Water& Ethanol	5.4,5.8
	Water & Ammonia	5.5
	Propionic acid & Phenol	5.6
	Water & Methanol	5.7
	Water & 1-Propanol	5.9
	Water & 2- Propanol	5.10
2&2	Diethylamine & Methanol	5.11
	Methanol & Ethanol	5.12
	Methanol & 1- Octanol	5.13
	Ethanol & 1- Octanol	5.14
	Pyridine & Methanol	5.15

1&3	Water & Methyl Ethyl Ketone	5.16,5.22
	Acetic acid & Ethyl acetate	5.17
	Acetic acid & Triethylamine	5.18
	Wtaer & Methyl Acetate	5.19
	Water & Ethyl acetate	5.20
	Water & Acetone	5.21
2&3	Methanol & Acetone	5.23
	Diethylamine & Acetonitile	5.24,5.28
	Ethanol & Acetonitle	5.25
	Ethanol & Isopropyl acetate	5.26
	Phenol & Methyl Ethyl Ketone	5.27
3&3	Methyl formate & Acetone	5.29
	Vinyl acetate & Methyl Ethyl Ketone	5.30
	Triethylamine &Methyl Ethyl Ketone	5.31
	Ethyl acetate & Triethylamine	5.32
2&4	Diethylamine& Chloroform	5.33
	HCl & Dichloroetane	5.34
3&4	Acetaldehyde &1-1Dichloroethane	5.35
1&5	Carbontetrachloride & Propionic acid	5.36
2&5	Methanol & Hexane	5.37
	Methanol & Heptane	5.38
	Ethanol & Hexane	5.39
	Ethanol & Heptane	5.40
	Ethanol & Octane	5.41
	1-Propanol &Octane	5.42
	1-Butanol & Hexane	5.43

	2-butanol & Hexane	5.44
	1-Butanol & 2-Chlorobutane	5.45
	Tert-butyl alcohol & chlorobenzene	5.46
	Tert-butyl alcohol & cyclohexane	5.47
	H_2S - Ethylcyclohexane	5.48
	Methanol & Dimethyl sulfide	5.49
	Methanol & Carbonyl sulfide	5.50
	Methanol & Carbondisulfide	5.51
3&5	Methyl acetate & Toluene	5.52
	Ethyl acetate & 1-chlorobutane	5.53
	Acetonitile & Toluene	5.54
	Methyl Ethyl Ketone & p-Xylene	5.55
	Acetone & Chlorobutane	5.56
	Ethyl formate & Benzene	5.57
	Nitromethane & 1-chlorobutane	5.58
4&5	1-2 Dichloroethane & Vinyl chloride	5.59
	1,2 Dichloroethane & cyclohexene	5.60
	1,2 Dichoroethane & cyclohexane	5.61
5&5	Ethane & Propane	5.62
	n-Hexane & n- Heptane	5.63
	n-Hexane & cyclohexane	5.64
	Benzene & Toluene	5.65
	Napthalene & Cyclohexane	5.66
	Toluene & Napthalene	5.67
	Propane & Propylene	5.68
	n-Heptane & Toluene	5.69
	1-3 Butadiene & Propylene	5.70

Kij in all tables presented are obtained by back calculation using Fibonacci Search computer program.

%AAD is the absolute average percent deviation in the calculated saturation pressure and defined as

$$\%AAD = \frac{100}{N} \sum \frac{\left| P_i^{Exp} - P_i^{Cal} \right|}{P_i^{Exp}}$$

TABLE5.1 Vapor pressure and %AAD for Water & 1,2 propanediol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water & 1,2 propanediol	0.0201,0.5870	353	2.300E-03	9.38E-02	2.050E-03	10.87	1.50E-03	1.940E-03	15.65
	0.0501,0.7520		3.750E-03		3.500E-03	6.67		3.550E-03	5.33
	0.0960,0.85		5.960E-03		5.320E-03	10.74		5.460E-03	8.39
	0.1979,0.925		1.079E-02		1.070E-02	0.83		1.001E-02	7.23
	0.4701,0.976		2.398E-02		2.116E-02	11.76		2.240E-02	6.59
	0.6002,0.986		2.959E-02		2.920E-02	1.32		2.892E-02	2.26
	0.6949,0.9855		3.368E-02		3.021E-02	10.32		2.998E-02	10.99
	0.8549,0.9962		4.139E-02		2.260E-02	45.40		2.879E-02	30.44
				%AAD		12.24	%AAD		10.86

TABLE5.2 Vapor pressure and %AAD for Water & 1,2 propanediol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water & 1,2 propanediol	0.0146,0.3902	373	5.120E-03	9.500E-02	4.980E-03	2.73	9.500E-03	4.590E-03	10.35
	0.0298,0.5661		6.830E-03		6.820E-03	0.15		6.250E-03	8.49
	0.0651,0.7200		1.046E-02		1.363E-02	30.31		9.680E-03	7.46
	0.2600,0.9180		2.978E-02		2.500E-02	16.05		2.567E-02	13.80
	0.8350,0.9915		8.547E-02		7.234E-02	15.36		1.000E-03	98.83
				%AAD		12.92	%AAD		27.79

TABLE5.3 Vapor pressure and %AAD for Water & HCL system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water - HCL	0.115,0.015	273	3.426E-04	2.30E-02	1.000E-03	191.89	5.00E-03	3.129E-04	8.67
	0.115,0.016	263	1.573E-04	9.99E-01	7.982E-05	49.26	5.02E-04	1.573E-04	0.01
	0.1896,0.828	253	9.356E-04		2.050E-05	97.81	4.10E-02	5.591E-05	94.02
				%AAD		112.98	%AAD		34.24

TABLE5.4 Vapor pressure and %AAD for Water & Ethanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water - Ethanol	3.48E-05,4.06E-05	372.4	0.10130	0.1844	0.06284	37.97	0.0045	1.012933E-01	0.0066
	4.4E-05,5.09E-05	373.5			0.06071	40.07		1.012931E-01	0.0068
	8.69E-05,1.01E-05	374.2			0.06004	40.73		1.012933E-01	0.0067
	9.86E-05,1.18E-05	375.6			0.09833	2.93		1.012930E-01	0.0069
	1.37E-04,1.44E-04	376.7			0.06082	39.96		1.012927E-01	0.0072
				%AAD		53.89	%AAD		0.0114

TABLE5.5 Vapor pressure and %AAD for Water & Ammonia system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water - Ammonia	0.8988,0.2130	313.15	0.03177	0.01	0.00692	78.22	0.092	0.02959	6.86
	0.9744,0.5822		0.01236		0.00705	42.96		0.01117	9.63
	0.9491,0.38279		0.01823		0.00699	61.66		0.01797	1.43
	0.8988,0.2130		0.03177		0.00693	78.19		0.02959	6.86
	0.8485,0.12609		0.04914		0.00677	86.22		0.03684	25.03
	0.7981,0.07729		0.07346		0.00676	90.80		0.06773	7.80
	0.7504,0.04946		0.10366		0.00714	93.11		0.08072	22.13
				%AAD		75.88	%AAD		11.39

TABLE5.6 Vapor pressure and %AAD for Propionic acid & Phenol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Propionic acid &Phenol	0.239,0.580	383.2	0.01507	0.0337	0.01489	1.19	0.0337	0.014975	0.63
	0.608,0.860		0.02466		0.02221	9.94		0.022329	9.45
				%AAD		1.59	%AAD		1.44
Propionic acid &Phenol	0.008,0.030	403.2	0.01913	0.039	0.008960	53.16	0.1562	0.019039	0.48
	0.495,0.790		0.04513		0.008749	80.61		0.045078	0.12
	0.608,0.850		0.05073		0.008370	83.50		0.050622	0.21
	0.732,0.915		0.05713		0.008202	85.64		0.050389	11.80
				%AAD		5.73	%AAD		3.15

TABLE5.7 Vapor pressure and %AAD for Water & Methanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water - Methanol	2.4E-05,2.17E-05	373	1.013E-01	4.618E-04	8.0100E-03	92.09	0.0995	0.098121	3.14
	2.7E-05,2.44E-05	374.2			8.0060E-03	92.10		0.095382	5.84
	3.0E-05,2.58E-05	375.6			7.6170E-03	92.48		0.098406	2.86
	3.93E-05,3.86E-05	376.4			1.1375E-02	88.77		0.099750	1.53
	5.31E-05,4.52E-05	378.0			6.5740E-03	93.51		0.100021	1.26
	7.7E-05,6.05E-05	381.2			7.5380E-03	92.56		0.101043	0.25
	7.89E-05,6.63E-05	382.3			6.9220E-03	93.17		0.081646	19.40
	11.2E-05,8.41E-05	383.9			7.4380E-03	92.66		0.081695	19.35
				%AAD		92.17	%AAD		6.70

TABLE5.8 Vapor pressure and %AAD for Water & Ethanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water -Ethanol	3.48E-05,4.06E-05	347.5	1.013E-01	1.451E-02	1.5157E-02	85.04	9.69E-02	1.00018E-01	1.27
	4.4E-05,5.09E-05	349.2			1.4752E-01	45.63		1.00111E-01	1.17
	8.69E-05,1.01E-04	351.6			1.4620E-02	85.57		1.00582E-01	0.71
	9.86E-05,1.18E-04	352.4			1.4692E-02	85.50		1.00769E-01	0.52
	13.7E-05,1.44E-04	354.8			1.3825E-02	86.35		1.00871E-01	0.42
	14.3E-05,1.66E-04	355.4			1.3216E-02	86.95		1.01197E-01	0.10
	15.4E-05,6.71E-04	357.9			1.4673E-02	85.52		1.71250E-02	83.09
	18.5E-05,8.26E-04	358.4			1.4780E-02	85.41		1.71300E-02	83.09
				%AAD		80.74	%AAD		21.30

TABLE5.9 Vapor pressure and %AAD for Water & 1-Propanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water & 1- Propanol	8.8E-05,2.77E-04	350	1.013E-01	9.312E-03	4.946E-02	51.17	3.90E-03	1.011E-01	0.24
	9.64E-05,2.68E-04	351.8			5.247E-02	48.21		1.010E-01	0.26
	12.9E-05,3.27E-04	352.9			9.582E-02	5.41		1.011E-01	0.20
	17.3E-05,4.93E-04	353.5			9.500E-02	6.22		1.013E-01	0.01
	21.9E-05,6.00E-04	354.7			4.728E-02	53.33		7.423E-02	26.72
	21.9E-05,6.47E-04	357.6			6.791E-02	32.96		7.426E-02	26.69
	22.2E-05,6.13E-04	358.5			4.958E-02	51.05		7.424E-02	26.71
	23.8E-05,7.30E-04	359.2			8.765E-02	13.47		7.432E-02	26.64
				%AAD		32.73	%AAD		13.43

TABLE5.10 Vapor pressure and %AAD for Water & 2- Propanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water & 2- Propanol	6.2E-05,8.3E-05	348.5	1.013E-01	9.412E-03	9.541E-02	5.82	9.91E-02	1.008E-01	0.51
	6.87E-05,9.04E-05	349.6			5.224E-02	48.43		1.006E-01	0.70
	8.22E-05,1.11E-04	350.1			1.011E-01	0.24		1.009E-01	0.41
	9.70E-05,1.35E-04	352.8			5.361E-02	47.07		1.013E-01	0.01
	9.94E-05,1.52E-04	353.5			2.964E-02	70.74		6.580E-02	35.04
	15.7E-05,2.34E-04	354.8			3.080E-02	69.59		6.571E-02	35.13
	18.5E-05,2.88E-04	355.7			2.940E-02	70.97		6.599E-02	34.86
	19.7E-05,2.95E-04	356.4			3.186E-02	68.55		6.577E-02	35.07
				%AAD		47.68	%AAD		17.72

TABLE5.11 Vapor pressure and %AAD for Diethylamine & Methanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Diethylamine - Methanol	0.05,0.0310	348.09	1.473E-01	8.00E-02	6.212E-03	95.78	8.60E-02	5.000E-02	66.07
	0.1,0.0732		1.442E-01		6.228E-03	95.68		1.436E-01	0.44
	0.15,0.1246		1.419E-01		6.256E-03	95.59		1.249E-01	11.99
	0.2,0.1814		1.404E-01		6.296E-03	95.52		1.291E-01	8.04
	0.25,0.2504		1.400E-01		6.296E-03	95.50		1.334E-01	4.67
	0.3,0.3219		1.405E-01		6.351E-03	95.48		1.387E-01	1.31
	0.35,0.3968		1.421E-01		6.422E-03	95.48		1.055E-01	25.74
	0.4,0.4730		1.449E-01		6.510E-03	95.51		1.374E-01	5.16
	0.45,0.5454		1.486E-01		6.614E-03	95.55		1.429E-01	3.84
				%AAD		95.57	%AAD		14.14

TABLE5.12 Vapor pressure and %AAD for Methanol & Ethanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol - Ethanol	0.195,0.351	349.60	1.013E-01	1.51E-06	5.230E-02	48.37	1.00E-04	1.013E-01	0.00
	0.254,0.432	348.22			5.260E-02	48.08		1.013E-01	0.00
	0.32,0.506	346.81			5.460E-02	46.10		1.013E-01	0.00
	0.385,0.576	345.63			5.650E-02	44.23		1.013E-01	0.00
	0.486,0.664	343.74			4.720E-02	53.41		1.013E-01	0.00
	0.515,0.688	343.33			4.960E-02	51.04		1.013E-01	0.00
	0.585,0.741	342.39			5.060E-02	50.05		1.013E-01	0.00
	0.624,0.768	341.64			4.990E-02	50.74		1.013E-01	0.00
	0.665,0.796	341.26			5.140E-02	49.26		1.013E-01	0.00
	0.714,0.828	340.52			5.330E-02	47.38		1.013E-01	0.00
	0.775,0.865	339.80			5.330E-02	47.38		1.013E-01	0.00
	0.824,0.892	339.22			6.570E-02	35.14		1.013E-01	0.00
				%AAD		43.94	%AAD		0.00

TABLE5.13 Vapor pressure and %AAD for Methanol & 1-Octanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & 1-Octhanol	0.0242,0.6062	437.95	1.013E-01	8.15E-01	9.102E-02	10.15	9.99E-01	1.013E-01	0.05
	0.0278,0.6674	433.78			9.954E-02	1.74		1.004E-01	0.89
				%AAD		5.95	%AAD		0.47

TABLE5.14 Vapor pressure and %AAD for Ethanol & 1-Octanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethanol & 1-Octhanol	0.0137,0.3666	452.19	1.013E-01	9.50E-01	1.006E-01	0.65	2.27E-02	1.013E-01	0.00
	0.0210,0.4566	413.28			9.887E-02	2.40		1.013E-01	0.00
	0.1494,0.9112	403.52			9.190E-02	9.28		1.013E-01	0.00
				%AAD		4.11	%AAD		0.00

TABLE5.15 Vapor pressure and %AAD for Pyridine & Methanol system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Pyridine & Methanol	0.0290,0.133	413.20	2.257E-01	5.49E-01	1.743E-01	22.79	1.82E-02	1.444E-01	36.04
	0.348,0.725		4.997E-01		1.048E-01	79.03		1.000E-01	79.99
	0.589,0.864		7.114E-01		1.000E-01	85.94		1.010E-01	85.80
	0.982,0.995		1.062E+00		9.366E-01	11.76		9.980E-01	5.98
				%AAD		49.88	%AAD		51.95

TABLE5.16 Vapor pressure and %AAD for Water & Methyl ethyl ketone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water& Methyl Ethyl Keton	0.002,0.085	370.60	1.013E-01	3.50E-03	3.729E-02	63.18	7.20E-01	1.000E-01	1.28
	0.004,0.184	366.20			3.762E-02	62.87		1.013E-01	0.00
	0.005,0.207	365.00			3.773E-02	62.76		1.013E-01	0.00
	0.011,0.394	357.60			3.877E-02	61.73		1.013E-01	0.00
				%AAD		62.63	%AAD		0.32

TABLE5.17 Vapor pressure and %AAD for Acetic acid & Ethyl acetate system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Acetic acid & Ethyl acetate	0.617,0.280	343.20	4.446E-02	1.08E-01	4.437E-02	0.20	2.27E-02	4.417E-02	0.66
	0.694,0.340		4.040E-02		3.976E-02	1.58		3.642E-02	9.85
	0.826,0.475		3.273E-02		3.231E-02	1.30		3.230E-02	1.31
				%AAD		1.02	%AAD		3.72
	0.009,0.002	373.20	2.023E-01	1.20E-01	1.843E-01	8.88	2.62E-01	5.000E-02	75.28
	0.133,0.045		1.849E-01		1.358E-01	26.54		5.000E-02	72.96
	0.617,0.310		1.199E-01		9.668E-02	19.34		1.198E-01	0.08
	0.693,0.375		1.100E-01		8.408E-02	23.56		9.340E-02	15.08
	0.825,0.520		9.166E-02		8.662E-02	5.50		4.500E-02	50.91
				%AAD		16.76	%AAD		42.86

TABLE5.18 Vapor pressure and %AAD for Acetic acid & Triethylamine system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Acetic acid & Triethylamine	0.103,0.015	333.20	3.600E-02	1.90E-01	3.591E-02	0.26	1.82E-03	3.588E-02	0.33
	0.170,0.02		3.440E-02		3.439E-02	0.03		3.437E-02	0.09
				%AAD		0.15	%AAD		0.21
	0.112,0.016	353.20	7.150E-02	1.82E-01	7.140E-02	0.14		7.125E-02	0.35
	0.130,0.019		7.090E-02		7.074E-02	0.23		7.083E-02	0.10
				%AAD		0.19	%AAD		0.22

TABLE5.19 Vapor pressure and %AAD for Water & Methyl acetate system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Wate& Methyl acetate	4.05E-03,5.12E-03	298.00	1.013E-01	1.74E-01	9.203E-02	9.15	2.10E-03	1.002E-01	1.09
	5.28E-03,7.03E-03	299.50			1.004E-01	0.85		1.007E-01	0.59
	8.01E-03,7.76E-03	300.40			9.790E-02	3.35		9.975E-03	90.15
	1.36E-03,1.18E-03	303.30			9.140E-02	9.78		9.820E-02	3.06
	2.12E-03,1.09E-03	305.50			9.816E-02	3.10		9.996E-02	1.32
				%AAD		5.25	%AAD		19.24

TABLE5.20 Vapor pressure and %AAD for Water & Ethyl acetate system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Wate& Ethyl acetate	7.23E-05,2.44E-04	298.00	1.013E-01	3.78E-01	1.013E-01	0.00	8.52E-03	1.050E-01	3.66
	7.43E-05,2.39E-04	299.10			9.866E-02	2.61		1.050E-01	3.66
	8.01E-05,2.54E-04	300.50			9.789E-02	3.37		1.050E-01	3.66
	8.21E-05,2.60E-04	302.70			9.782E-02	3.44		1.050E-01	3.66
	10.6E-05,3.39E-04	303.60			9.831E-02	2.95		1.048E-01	3.43
	12.6E-05,4.31E-04	304.70			9.871E-02	2.55		1.031E-01	1.73
	14.7E-05,5.03E-04	305.00			1.001E-01	1.22		1.010E-01	0.30
	17.8E-05,5.72E-04	308.00			1.008E-01	0.52		1.004E-01	0.85
				%AAD		2.08	%AAD		2.62

TABLE5.21 Vapor pressure and %AAD for Water & Acetone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Wate& Acetone	19.7E-04,18.3E-04	300.50	1.013E-01	2.46E-01	9.387E-02	7.33	9.22E-04	1.002E-01	1.09
	20.0E-04,18.7E-04	301.80			9.086E-02	10.31		1.000E-01	1.26
	30.0E-04,27.8E-04	303.50			9.779E-02	3.46		1.000E-01	1.25
	34.7E-04,33.1E-04	304.00			9.387E-02	7.33		1.000E-01	1.25
				%AAD		7.11	%AAD		1.21

TABLE5.22 Vapor pressure and %AAD for Water & Methyl Ethyl ketone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Water& Methyl Ethyl keton	0.0088,0.3742	280.50	1.013E-01	2.85E-01	9.550E-02	5.72	2.02E-04	9.992E-02	1.36
	0.0127,0.4521	282.30			9.911E-02	2.16		9.908E-02	2.19
	0.0134,0.4621	283.40			1.005E-01	0.77		1.010E-01	0.32
	0.0154,0.4903	284.50			1.010E-01	0.25		1.011E-01	0.18
	0.0159,0.4964	287.20			1.002E-01	1.05		1.004E-01	0.89
	0.0191,0.5325	288.60			1.009E-01	0.38		1.010E-01	0.28
	0.0239,0.5689	290.20			9.942E-02	1.86		9.968E-02	1.60
				%AAD		1.74	%AAD		0.97

TABLE5.23 Vapor pressure and %AAD for Methanol & Acetone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & Acetone	0.625,0.668	328.92	1.013E-01	2.50E-01	8.648E-02	14.63	4.52E-02	1.009E-01	0.37
	0.594,0.646	329.05			8.332E-02	17.75		1.010E-01	0.30
	0.386,0.488	330.50			8.153E-02	19.52		1.010E-01	0.34
	0.332,0.444	331.02			8.667E-02	14.44		1.004E-01	0.92
	0.314,0.423	331.18			1.013E-01	0.01		1.010E-01	0.26
	0.257,0.374	332.00			9.537E-02	5.85		9.913E-02	2.14
	0.245,0.363	332.11			9.855E-02	2.71		9.944E-02	1.84
				%AAD		10.70	%AAD		0.88

TABLE5.24 Vapor pressure and %AAD for Diethylamine & Acetcnitrile system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Diethylamine & Acetonitrile	0.05,0.3050	298.00	1.624E-02	3.80E-02	7.830E-03	51.77	7.45E-01	1.431E-02	11.85
	0.1,0.4454		1.951E-02		7.910E-03	59.46		1.950E-02	0.05
	0.15,0.5258		2.196E-02		7.972E-03	63.69		2.155E-02	1.85
	0.2,0.5779		2.380E-02		8.027E-03	66.27		2.308E-02	3.01
	0.25,0.6157		2.526E-02		8.072E-03	68.04		2.433E-02	3.67
	0.3,0.6452		2.643E-02		8.138E-03	69.21		2.539E-02	3.96
	0.35,0.6690		2.739E-02		8.199E-03	70.07		2.631E-02	3.97
	0.4,0.6895		2.820E-02		8.267E-03	70.68		2.713E-02	3.79
				%AAD		64.90	%AAD		4.02

TABLE5.25 Vapor pressure and %AAD for Ethanol & Acetonitrile system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethanol & Acetonitrile	0.2,0.2606	293.15	1.086E-02	3.32E-01	1.005E-02	7.46	9.38E-02	4.300E-03	60.39
	0.3,0.3147		1.098E-02		9.373E-03	14.60		4.100E-03	62.65
	0.5,0.3914		1.082E-02		5.930E-03	45.17		3.900E-03	63.94
	0.6,0.4277		1.059E-02		5.779E-03	45.41		1.028E-02	2.92
	0.7,0.4701		1.022E-02		5.768E-03	43.53		9.958E-03	2.51
	0.8,0.5318		9.586E-03		5.892E-03	38.54		9.412E-03	1.82
				%AAD		32.45	%AAD		32.37
	0.8,0.7931	393.15	4.493E-01	8.00E-02	4.242E-01	5.58	1.56E-01	4.290E-01	4.52
				%AAD		5.58	%AAD		4.52

TABLE5.26 Vapor pressure and %AAD for Ethanol & Isopropyl acetate system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethanol & Isopropyl acetate	0.302,0.238	302.00	1.054E-01	6.00E-02	1.006E-01	4.51	6.00E-02	1.006E-01	4.51
	0.4,0.303		1.024E-01		8.631E-02	15.71		8.631E-02	15.71
	0.596,0.496		9.480E-02		7.268E-02	23.33		7.268E-02	23.33
				%AAD		14.52	%AAD		14.52

TABLE5.27 Vapor pressure and %AAD for Phenol & Methyl ethyl ketone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Phenol & Methyl ethyl ketone	0.0966,0.378	393.20	1.900E-02	6.00E-03	1.208E-02	36.41	1.60E-01	5.000E-03	73.68
	0.199,0.648		2.580E-02		5.000E-03	80.62		2.451E-02	4.98
	0.392,0.899		6.760E-02		1.070E-01	58.28		5.989E-02	11.41
	0.731,0.993		2.120E-01		1.522E-02	92.82		2.004E-01	5.49
				%AAD		67.03	%AAD		23.89
	0.732,0.989	413.20	3.343E-01	0.0036	2.383E-01	28.72	2.50E-02	1.500E-02	95.51
	0.0953,0.342		3.790E-02		1.500E-02	60.42		1.500E-02	60.42
	0.376,0.830		1.075E-01		1.624E-02	84.89		9.732E-02	9.47
				%AAD		58.01	%AAD		55.13

TABLE5.28 Vapor pressure and %AAD for Diethyamine & Acetonitrile system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Diethylamine & Acetonitrile	0.15,0.5258	313.15	2.067E-02	1.92E-02	1.660E-02	19.71	9.38E-02	5.117E-03	75.25
	0.3,0.6452		2.664E-02		2.544E-02	4.50		5.362E-03	79.87
	0.35,0.6690		2.735E-02		2.313E-02	15.44		5.405E-03	80.24
				%AAD		13.22	%AAD		78.45

TABLE5.29 Vapor pressure and %AAD for Methyl formate & Acetone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methyl formate & Acetone	0.5973,0.7785	323.20	1.452E-01	7.00E-02	1.185E-01	18.38	2.00E-01	1.431E-01	1.49
	0.8003,0.9045		1.686E-01		1.672E-01	0.83		5.000E-02	70.34
				%AAD		9.60	%AAD		35.92
	0.5511,0.7237	343.20	2.689E-01	8.90E-03	2.664E-01	0.94	3.10E-01	2.674E-01	0.55
	0.7072,0.8377		3.013E-01		2.823E-01	6.30		5.000E-02	83.41
	0.8038,0.8982		3.207E-01		0.3204295	0.07		5.000E-02	84.41
				%AAD		2.44	%AAD		56.12
	0.5782,0.7389	363.20	4.846E-01	5.20E-01	4.835E-01	0.22	3.99E-02	4.372E-01	9.79
	0.9004,0.9400		5.855E-01		5.215E-01	10.93		5.500E-02	90.61
				%AAD		5.58			50.20

TABLE5.30 Vapor pressure and %AAD for Vinyl acetate & Methyl ethyl ketone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Vinyl acetate &	0.545,0.598	333.20	6.030E-02	1.11E-01	5.977E-02	0.88	1.31E-01	6.026E-02	0.07
Methyl ethyl ketone	0.986,0.989		6.200E-02		6.139E-02	0.98		5.000E-02	19.35
				%AAD		0.93	%AAD		9.71
	0.190,0.225	353.20	1.068E-01	1.17E-01	9.526E-02	10.81	1.13E-01	1.132E-01	5.97
	0.539,0.584		1.137E-01		1.125E-01	1.09		5.000E-02	56.02
				%AAD		5.95	%AAD		31.00
	0.177,0.213	373.20	1.965E-01	1.18E-01	1.940E-01	1.28	0.005202	1.000E-01	49.11
				%AAD		1.28	%AAD		49.11
	0.547,0.594	393.20	3.584E-01	1.14E-01	3.366E-01	6.08	5.58E-02	3.557E-01	0.74
	0.767,0.793		3.722E-01		3.564E-01	4.24		3.710E-01	0.32
	0.986,0.988		3.843E-01		0.3543896	7.78		3.779E-01	1.67
				%AAD		6.04	%AAD		0.91

TABLE5.31 Vapor pressure and %AAD for Triethyamine & Methy ethyl ketone system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Triethylamine & Methyl ethyl ketone	0.6147,0.5083	293.00	1.072E-02	4.89E-02	1.023E-02	4.61	8.02E-02	1.065E-02	0.66
	0.7571,0.5885		1.017E-02		1.011E-02	0.61		8.644E-03	15.01
				%AAD		2.61	%AAD		7.83
	0.4951,0.4490	320.00	3.465E-02	3.00E-02	3.459E-02	0.16	7.45E-02	3.432E-02	0.95
	0.9027,0.7337		2.779E-02		2.481E-02	10.72		2.662E-02	4.21
	0.95,0.8266		2.592E-02		2.464E-02	4.94		2.513E-02	3.05
				%AAD		5.27	%AAD		2.74

TABLE5.32 Vapor pressure and %AAD for Triethylamine & Ethy acetate system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Triethylamine &	0.5694,0.0455	273.00	4.604E-02	2.00E-02	6.603E-03	85.66	2.69E-01	4.600E-02	0.09
Ethyl acetate	0.7007,0.0715		3.484E-02		6.732E-03	80.68		3.221E-02	7.54
	0.7935,0.1064		2.684E-02		6.947E-03	74.12		2.614E-02	2.61
	0.8970,0.2024		1.480E-02		7.434E-03	49.77		1.321E-02	10.73
				%AAD		72.56	%AAD		5.24
	0.7052,0.2609	363.00	4.682E-01	8.82E-02	2.120E-01	54.71	4.49E-02	3.178E-01	32.12
	0.7983,0.3548		3.731E-01		1.768E-01	52.60		3.595E-01	3.63
				%AAD		53.66	%AAD		17.87

TABLE5.33 Vapor pressure and %AAD for Diethylamine & Chloroform system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%divi.
Diethylamine &Chloroform	0.0546,0.0211	334.55	1.013E-01	1.80E-03	8.060E-02	20.43	9.99E-01	1.013E-01	0.00
	0.0591,0.0311	335.45			9.090E-02	10.27		1.013E-01	0.00
	0.0917,0.0442	336.15			5.900E-02	41.76		1.013E-01	0.00
	0.1005,0.0472	336.25			5.800E-02	42.74		1.013E-01	0.00
				%AAD		28.80	%AAD		0.00

TABLE5.34 Vapor pressure and %AAD for Hydrochloric acid & Dichloroethane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Hydrochloric acid & Dichloroethane	0.5442,0.0021	273.00	9.260E-01	4.20E-01	4.500E-01	51.40	9.50E-02	3.120E-01	66.31
	0.2151,0.0005		1.902E+00		5.000E-01	73.72		2.141E-01	88.75
	0.1054,0.0002		2.271E+00		5.869E-01	74.16		1.525E-01	93.29
	0.0539,0.0001		2.439E+00		6.834E-01	71.98		7.866E-02	96.77
				%AAD		67.81	%AAD		86.28

TABLE5.35 Vapor pressure and %AAD for Acetaldehyde & 1,1 Dichloroethane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Acetaldehyde &	0.9092, 0.647	303.00	5.212E-02	0.0091	5.133E-02	1.51	6.00E-03	3.645E-02	30.07
1,1 Dichloroethane	0.7512,0.3531		7.381E-02		3.606E-02	51.15		4.442E-02	39.81
	0.5952,0.2941		7.887E-02		3.455E-02	56.19		7.501E-02	4.89
	0.6992,0.3351		8.285E-02		3.350E-02	59.56		7.123E-02	14.02
	0.6464,0.3217		8.411E-02		3.252E-02	61.33		8.160E-02	2.99
	0.5483,0.2510		9.062E-02		3.194E-02	64.75		8.626E-02	4.82
	0.5277,0.2320		9.122E-02		3.163E-02	65.32		8.909E-02	2.34
				%AAD		51.40	%AAD		14.13
	0.9445 ,0.7736	306.00	5.320E-02	0.001	5.002E-02	5.98	5.02E-04	7.500E-03	85.90
	0.7752,0.4171		5.720E-02		5.669E-02	0.89		4.606E-02	19.47
	0.9072,0.6684		6.090E-02		6.063E-02	0.44		5.277E-02	13.35
	0.6863,0.3516		8.350E-02		3.508E-02	57.98		7.962E-02	4.65
	0.7022,0.3547		8.640E-02		3.529E-02	59.16		7.971E-02	7.74
	0.6717,0.3128		9.110E-02		3.436E-02	62.28		8.316E-02	8.72
	0.6124,0.2752		9.430E-02		3.309E-02	64.91		9.082E-02	3.69
				%AAD		35.95	%AAD		20.50

Binary mixtures group 1&5

TABLE5.36 Vapor pressure and %AAD for Propionic acid & Carbontetrachloride system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Propionic acid &	0.406,0.868	364.00	1.013E-01	2.00E-01	9.694E-02	4.31	9.00E-02	1.013E-01	0.00
Carbontetrachloride	0.574,0.927	358.00			1.008E-01	0.53		4.019E-02	60.33
	0.773,0.973	353.00			9.792E-02	3.34		3.978E-02	60.73
	1.000,1.000	349.41			9.883E-02	2.44		5.000E-02	50.64
				%AAD		2.65	%AAD		42.92

TABLE5.37 Vapor pressure and %AAD for Methanol & n-Hexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & n- hexane	0.5,0.460	298.15	3.634E-02	6.00E-02	3.410E-02	6.16	9.81E-01	3.634E-02	0.00
	0.601,0.458		3.619E-02		3.190E-02	11.85		3.612E-02	0.19
	0.7,0.457		3.630E-02		3.040E-02	16.25		3.612E-02	0.50
	0.75,0.456		3.631E-02		3.570E-02	1.68		3.609E-02	0.61
				%AAD		8.99	%AAD		0.32

TABLE5.38 Vapor pressure and %AAD for Methanol & n-Heptane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & n- heptane	0.04,0.688	298.15	1.950E-02	5.00E-02	1.840E-02	5.64	1.70E-02	3.300E-03	83.08
	0.06,0.704		2.050E-02		2.020E-02	1.46		2.040E-02	0 49
	0.07,0.711		2.100E-02		2.080E-02	0.95		1.690E-02	19.52
	0.08,0.713		2.132E-02		2.070E-02	2.91		1.640E-02	23.08
	0.10,0.719		2.147E-02		2.130E-02	0.79		1.490E-02	30.60
	0.10,0.721		2.162E-01		2.080E-02	90.38		1.440E-02	93.34
				%AAD		17.02	%AAD		41.68

TABLE5.39 Vapor pressure and %AAD for Ethanol & n-Hexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethanol & n- hexane	0.04,0.195	298.15	2.450E-02	1.00E-02	1.060E-02	56.73	8.99E-01	2.242E-02	8.49
	0.06,0.209		2.492E-02		9.600E-03	61.48		2.258E-02	9.40
	0.08,0.220		2.522E-02		9.500E-03	62.33		2.265E-02	10.18
	0.1,0.226		2.523E-02		9.400E-03	62.74		2.256E-02	10.60
	0.13,0.235		2.566E-02		9.200E-03	64.15		2.254E-02	12.16
	0.2,0.246		2.551E-02		8.800E-03	65.50		2.207E-02	13.50
	0.301,0.254		2.561E-02		8.200E-03	67.98		2.150E-02	16.05
	0.400,0.259		2.554E-02		7.600E-03	70.24		2.545E-02	0.36
	0.501,0.265		2.560E-02		7.000E-03	72.66		2.533E-02	1.05
	0.600,0.272		2.533E-02		6.400E-03	74.73		2.474E-02	2.34
	0.700,0.283		2.474E-02		9.100E-03	63.22		2.381E-02	3.77
	0.800,0.307		2.332E-02		1.390E-02	40.39		2.217E-02	4.92
				%AAD		63.51	%AAD		7.73

TABLE5.40 Vapor pressure and %AAD for Ethanol & n-Heptane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethanol & n- heptane	0.06,0.467	298.15	1.130E-02	5.00E-02	5.300E-03	53.10	8.95E-01	1.089E-02	3.63
	0.1,0.488		1.173E-02		4.200E-03	64.19		1.125E-02	4.07
	0.12,0.598		1.186E-02		3.900E-03	67.12		1.137E-02	4.13
	0.160,0.507		1.189E-02		3.600E-03	69.72		1.144E-02	3.80
	0.200,0.514		1.187E-02		3.300E-03	72.20		1.147E-02	3.40
	0.240,0.527		1.227E-02		3.300E-03	73.11		1.180E-02	3.80
	0.300,0.520		1.239E-02		3.300E-03	73.37		1.196E-02	3.51
	0.4,0.532		1.215E-02		3.400E-03	72.02		1.187E-02	2.27
				%AAD		68.10	%AAD		3.58

TABLE5.41 Vapor pressure and %AAD for Ethanol & n-Octhane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethanol & n- Octhane	0.0830,0.7381	343.15	6.030E-02	2.42E-02	5.852E-02	2.95	5.81E-01	4.278E-02	29.04
	0.114,0.7594		6.499E-02		4.173E-02	35.78		4.225E-02	34.98
	0.1311,0.7677		6.699E-02		3.037E-02	54.67		6.653E-02	0.69
	0.1807,0.7813		6.984E-02		2.369E-02	66.09		6.950E-02	0.48
				%AAD		39.87	%AAD		16.30

TABLE5.42 Vapor pressure and %AAD for 1-Propanol & n-Octane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
1- Propanol & n- Octhane	0.0649,0.4849	385.15	5.223E-01	1.00E-04	4.289E-02	91.79	8.65E-01	5.220E-02	90.00
	0.0933,0.5358		5.731E-02		2.477E-02	56.78		5.705E-02	0.46
	0.1315,0.5722		6.107E-02		2.131E-02	65.12		6.101E-02	0.10
	0.1737,0.5981		6.434E-02		1.992E-02	69.04		5.389E-02	16.24
				%AAD		70.68	%AAD		26.70

TABLE5.43 Vapor pressure and %AAD for 1-Butanol & n-Hexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
1- Butanol & n- Hexane	0.045,0.02	298.15	2.011E-02	1.60E-02	1.991E-02	1.02	6.23E-01	2.009E-02	0.12
	0.168,0.023		1.980E-02		1.930E-02	2.53		1.809E-02	8.61
	0.205,0.024		1.982E-02		1.903E-02	4.01		1.789E-02	9.76
	0.301,0.027		1.935E-02		1.929E-02	0.28		1.697E-02	12.28
				%AAD		1.96	%AAD		7.69

TABLE5.44 Vapor pressure and %AAD for 2-Butanol & n-Hexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
2- Butanol & n- Hexane	0.092,0.056	298.15	2.051E-02	1.20E-03	1.965E-02	4.21	9.87E-01	1.999E-02	2.56
	0.334,0.086		1.919E-02		1.896E-02	1.20		1.768E-02	7.88
	0.394,0.091		1.901E-02		1.893E-02	0.38		1.711E-02	9.99
				%AAD		1.93	%AAD		6.81

TABLE5.45 Vapor pressure and %AAD for 1-Butanol & 2-Chlorobutane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
1- Butanol & 2- Chlorobutane	0.024,0.2011	385.24	1.013E-01	1.40E-03	9.855E-02	2.71	9.90E-01	1.013E-01	0.00
	0.0455,0.3202	381.25			9.621E-02	5.02		1.013E-01	0.00
	0.1230,0.6246	368.60			1.004E-01	0.91		1.013E-01	0.00
				%AAD		2.88	%AAD		0.00
	0.0250,0.1960	362.20	6.00E-02	6.00E-02	1.000E-02	83.33	9.90E-01	6.000E-02	0.00
	0.0486,0.3292	358.20			1.762E-02	70.64		6.000E-02	0.00
				%AAD		76.99	%AAD		0.00

TABLE5.46 Vapor pressure and %AAD for Tert - butyl alcohol & Chlorobenzene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Tert - butyl alcohol & Chlorobenzene	0.2240,0.7040	368.40	1.013E-01	9.00E-04	1.009E-01	0.36	5.43E-01	1.013E-01	0.00
	0.444,0.8080	363.20			1.009E-01	0.35		1.013E-01	0.00
	0.5280,0.8140	361.30			1.005E-01	0.76		1.013E-01	0.00
	0.5580,0.8360	359.90			1.002E-01	1.08		4.910E-02	51.53
	0.6360,0.8500	359.60			1.045E-01	3.16		4.370E-02	56.86
				%AAD		1.14	%AAD		21.68

TABLE5.47 Vapor pressure and %AAD for Tert - butyl alcohol & Cyclohexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Tert - butyl alcohol & Cyclohexane	0.034,0.166	328.20	3.532E-02	1.18E-01	3.306E-02	6.40	8.70E-01	2.875E-02	18.60
	0.069,0.253		3.815E-02		3.403E-02	10.80		3.809E-02	0.16
	0.156,0.393		4.400E-02		3.424E-02	22.18		4.014E-02	8.77
	0.231,0.474		4.800E-02		3.439E-02	28.35		4.251E-02	11.44
	0.948,0.821		5.108E-02		3.556E-02	30.38		4.300E-02	16.78
	0.471,0.609		5.326E-02		3.608E-02	32.26		4.348E-02	18.36
	0.536,0.628		5.404E-02		3.714E-02	31.27		4.423E-02	18.15
	0.802,0.729		5.413E-02		4.424E-02	18.27		4.652E-02	21.47
	0.601,0.657		5.426E-02		4.811E-02	11.33		5.276E-02	2.76
	0.736,0.705		5.442E-02		5.389E-02	0.97		5.401E-02	0.75
				%AAD		19.22	%AAD		11.72

TABLE5.48 Vapor pressure and %AAD for Hydrogen sulfide & Ethyl cyclohexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Hydrogen sulfide & Ethyl cyclohexane	0.049,0.9811	310.90	1.700E-01	8.90E-03	7.483E-02	55.98	9.09E-01	1.464E-01	13.90
	0.1495,0.9936		4.650E-01		2.045E-01	56.02		2.045E-01	56.02
	0.3060,0.9964		9.720E-01		5.326E-01	45.21		4.168E-01	57.11
	0.5362,0.9975		1.540E+00		7.292E-01	52.65		7.292E-01	52.65
				%AAD		52.46	%AAD		44.92

TABLE5.49 Vapor pressure and %AAD for Methanol & Dimethylsulfide system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & Dimethylsulfide	0.0739,0.6358	297.84	3.387E-02	3.00E-01	1.723E-02	49.12	2.50E-01	3.383E-02	0.11
	0.0921,0.6039		3.614E-02		1.704E-02	52.84		3.574E-02	1.09
	0.5138,0.8510		6.232E-02		1.698E-02	72.75		5.798E-02	6.96
	0.5152,0.8360		6.247E-02		1.694E-02	72.89		5.741E-02	8.10
				%AAD		61.90	%AAD		4.07

TABLE5.50 Vapor pressure and %AAD for Methanol & Carbonyl sulfide system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & Carbonyl sulfide	0.0315,0.9188	293.20	1.585E-01	4.00E-01	7.838E-02	50.56	1.00E-01	1.568E-01	1.10
	0.0471,0.9422		2.206E-01		2.010E-01	8.90		1.305E-01	40.84
				%AAD		29.73	%AAD		20.97
	0.0236,0.9741	253.20	3.826E-02	3.00E-01	3.476E-02	9.16	0.157094	3.724E-02	2.65
	0.0622,0.9892		8.995E-02		7.213E-02	19.81		1.50E-01	66.76
	0.1527,0.9947		1.813E-01		1.500E-01	17.26		1.50E-01	17.26
				%AAD		15.41	%AAD		28.89

TABLE5.51 Vapor pressure and %AAD for Methanol & Carbondisulfide system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methanol & Carbondisulfide	0.0077,0.3649	253.20	1.380E-03	5.20E-02	6.932E-04	49.77	7.85E-02	5.000E-04	63.77
	0.0156,0.5286		2.070E-03		6.942E-04	66.46		5.000E-04	75.85
	0.0439,0.7351		4.480E-03		6.974E-04	84.43		4.473E-03	0.15
	0.0748,0.8057		5.240E-03		6.982E-04	86.68		5.201E-03	0.75
				%AAD		71.83	%AAD		35.13
	0.0185,0.6917	233.20	4.800E-04	6.50E-02	2.904E-04	39.50	0.001771	5.000E-04	4.17
	0.0572,0.8548		1.170E-03		2.912E-04	75.11		1.050E-03	10.22
	0.1170,0.9052		1.580E-03		2.913E-04	81.57		1.547E-03	2.08
				%AAD		65.39	%AAD		5.49

TABLE5.52 Vapor pressure and %AAD for Methyl acetate & Toluene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methyl acetate & Toluene	0.018,0.115	379.60	1.013E-01	2.00E-03	9.717E-02	4.08	9.99E-01	1.010E-01	0.30
	0.044,0.241	374.80			9.503E-02	6.19		1.010E-01	0.30
	0.051,0.269	373.80			9.510E-02	6.12		1.010E-01	0.30
				%AAD		5.46	%AAD		0.30

TABLE 5.53 Vapor pressure and %AAD for Ethyl acetate & 1-Chlorobutane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethyl acetate &	0.1,0.1124	298.15	1.312E-02	2.00E-03	1.304E-02	0.61	9.99E-01	1.369E-02	4.31
1-Chlorobutane	0.2,0.2134		1.345E-02		1.311E-02	2.53		1.380E-02	2.59
	0.3,0.3071		1.371E-02		1.342E-02	2.12		1.385E-02	1.05
	0.4,0.3957		1.384E-02		1.345E-02	2.82		1.385E-02	0.04
	0.5,0.4826		1.389E-02		1.349E-02	2.88		1.377E-02	0.89
	0.6,0.5706		1.398E-02		1.357E-02	2.93		1.362E-02	2.58
	0.7,0.6627		1.401E-02		1.393E-02	0.57		1.341E-02	4.28
	0.8,0.7622		1.405E-02		1.395E-02	0.71		1.315E-02	6.42
	0.9,0.9930		1.407E-02		1.400E-02	0.50		1.284E-02	8.75
				%AAD		1.74	%AAD		3.43

TABLE5.54 Vapor pressure and %AAD for Acetonitrile & Toluene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Acetonitrile & Toluene	0.0023,0.0035	343.15	6.970E-02	1.90E-01	6.350E-02	8.90	5.40E-01	6.968E-02	0.02
	0.0043,0.006		6.980E-02		6.560E-02	6.02		6.975E-02	0.08
	0.0072,0.0106		6.990E-02		6.590E-02	5.72		6.978E-02	0.17
	0.0155,0.0201		7.010E-02		6.820E-02	2.71		6.986E-02	0.35
				%AAD		5.84	%AAD		0.15

TABLE5.55 Vapor pressure and %AAD for Methyl ethyl ketone & p-Xylene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Methyl ethyl ketone & p-Xylene	0.060,0.287	399.12	1.013E-01	2.00E-02	9.210E-02	9.08	1.55E-01	1.013E-01	0.00
	0.088,0.381	395.22			9.777E-02	3.48		1.013E-01	0.00
	0.571,0.861	356.76			9.495E-02	6.27		1.013E-01	0.00
				%AAD		6.28	%AAD		0.00

TABLE5.56 Vapor pressure and %AAD for Acetone & 1-Chlorobutane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Acetone & 1- Chlorobutane	0.1,0.2345	348.16	1.084E-01	6.00E-01	5.156E-02	52.45	7.78E-01	9.010E-02	16.91
	0.2,0.3874		1.227E-01		5.520E-02	55.00		1.015E-01	17.23
	0.3,0.5006		1.349E-01		5.993E-02	55.57		1.180E-01	12.53
	0.4,0.5904		1.454E-01		6.465E-02	55.55		1.450E-01	0.29
				%AAD		54.64	%AAD		11.74

TABLE5.57 Vapor pressure and %AAD for Ethyl formate & Benzene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethyl formate & Benzene	0.026,0.091	323.15	3.865E-02	5.30E-01	1.865E-02	51.75	5.98E-01	3.402E-02	11.97
	0.162,0.364		4.833E-02		2.205E-02	54.38		4.602E-02	4.78
	0.294,0.536		5.682E-02		2.535E-02	55.39		5.542E-02	2.46
	0.356,0.588		5.985E-02		2.690E-02	55.05		5.890E-02	1.59
				%AAD		54.14	%AAD		5.20

TABLE5.58 Vapor pressure and %AAD for Nitromethane & 1-Chlorobutane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Nitromethane & 1-Chlorobutane	0.1,0.5549	298.18	9.938E-03	1.50E-02	1.287E-03	87.05	2.53E-02	8.501E-03	14.46
	0.2,0.6449		1.182E-02		2.150E-03	81.80		7.554E-03	36.07
	0.3,0.6822		1.268E-02		2.999E-03	76.34		9.044E-03	28.66
	0.4,0.7071		1.321E-02		3.858E-03	70.79		1.231E-02	6.79
	0.5,0.7281		1.358E-02		4.752E-03	65.01		1.286E-02	5.31
	0.6,0.7502		1.388E-02		5.711E-03	58.85		1.316E-02	5.17
	0.7,0.7793		1.413E-02		6.796E-03	51.92		1.318E-02	6.75
	0.8,0.8168		1.429E-02		8.135E-03	43.05		1.371E-02	4.03
				%AAD		66.85	%AAD		13.41

TABLE5.59 Vapor pressure and %AAD for 1,2 Dichloroethane & Vinyl chloride system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
1,2 Dichloroethane &	0.2917,0.0127	293.00	2.514E-01	3.00E-01	2.461E-01	2.12	2.17E-02	5.000E-02	80.11
Vinyl chloride	0.4211,0.0201		2.117E-01		2.081E-01	1.70		2.114E-01	0.16
	0.5166,0.0274		1.825E-01		6.190E-02	66.08		1.620E-01	11.25
	0.5107,0.0269		1.858E-01		6.686E-02	64.02		1.598E-01	14.00
	0.5974,0.0357		1.561E-01		6.082E-02	61.04		1.457E-01	6.63
	0.6344,0.0404		1.450E-01		6.076E-02	58.10		1.050E-01	27.60
				%AAD		42.18	%AAD		23.29
	0.0961,0.0066	320.00	6.702E-01	0.3	6.683E-01	0.28	1.25E-02	3.500E-02	94.78
	0.1900,0.0132		7.529E-02		7.519E-02	0.13		3.500E-02	53.51
				%AAD		0.21	%AAD		74.15

TABLE5.60 Vapor pressure and %AAD for 1,2 Dichloroethane & Cyclohexene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
1,2 Dichloroethane & Cyclohexene	0.2725,0.32	352.90	1.013E-01	2.00E-01	1.009E-01	0.43	1.00E+00	1.010E-01	0.30
	0.15,0.1995	354.00			1.013E-01	0.00		1.013E-01	0.00
				%AAD		0.21	%AAD		0.15

TABLE5.61 Vapor pressure and %AAD for 1,2 dichloroethane & Cyclohexane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
1,2 Dichloroethane & Cyclohexane	0.1730,0.2980	350.60	1.013E-01	2.00E-01	1.011E-01	0.17	0.9995	1.013E-01	0.00
				%AAD		0.17	%AAD		0.00

TABLE5.62 Vapor pressure and %AAD for Ethane & Propane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Ethane & Propane	0.0720,0.2575	270	5.31E-01	6.30E-02	1.95E-01	63.22	1.56E-01	2.789E-01	47.45
	0.0760,0.2690		5.36E-01		4.65E-01	0.00		2.825E-01	47.30
	0.0831,0.2903		5.47E-01		4.19E-01	23.42		0.2888745	47.19
				%AAD		28.88	%AAD		47.31

TABLE5.63 Vapor pressure and %AAD for n-Hexane & n-Heptane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
n-Hexane & n- Heptane	0.4853,0.7030	353.96	1.010E-01	5.00E-03	1.009E-01	0.39	9.70E-01	1.013E-01	0.00
	0.5123,0.727	352.93			1.010E-01	0.30		1.013E-01	0.00
	0.5571,0.7622	351.94			1.003E-01	0.99		1.013E-01	0.00
	0.6187,0.8074	350.27			9.980E-02	1.48		4.050E-02	60.02
	0.6824,0.8495	348.72			9.120E-02	9.97		4.210E-02	58.44
				%AAD		2.63	%AAD		23.69

TABLE5.64 Vapor pressure and %AAD for n-Hexane & Cyclohexane system using Quartic EOS and Peng - Robinson EOS

System	x_1,y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
n-Hexane & Cyclohexane	0.1250,0.1830	351.3	1.010E-01	5.70E-03	9.600E-02	5.23	0.999	1.013E-01	0.00
	0.2939,0.3792	349			9.610E-02	5.13		1.013E-01	0.00
				%AAD		5.18	%AAD		0.00

TABLE5.65 Vapor pressure and %AAD for Benzene &Toluene system using Quartic EOS and Peng - Robinson EOS

System	x_1,y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Benzene & Toluene	0,0	325.15	1.340E-02	5.00E-01	9.300E-03	30.60	3.65E-01	5.000E-03	62.69
	0.566,0.810		3.260E-02		3.150E-02	3.37		3.260E-02	0.00
	0.793,0.928		3.600E-02		3.580E-02	0.56		3.358E-02	6.72
				%AAD		11.51	%AAD		23.14
	0.566,0.759	373.15	1.381E-01	1.00E-01	1.379E-01	0.14	2.00E-03	1.379E-01	0.14
	0.793,0.912		1.577E-01		1.348E-01	14.52		1.348E-01	14.52
				%AAD		7.33	%AAD		7.33

TABLE5.66 Vapor pressure and %AAD for Cyclohexane & Napthalene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Cyclohexane &	0.2727,0.9437	413.15	1.628E-01	1.00E-01	1.518E-01	6.76	9.00E-02	1.564E-01	3.93
Napthalene	0.8879,0.9929		3.978E-01		3.748E-01	5.78		2.004E-01	49.62
				%AAD		6.27	%AAD		26.78

TABLE5.67 Vapor pressure and %AAD for Toluene & Napthalene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Toluene & Napthalene	0.6729,0.9700	413.15	1.491E-01	5.00E-01	1.470E-01	1.41	8.60E-01	1.439E-01	3.49
				%AAD		1.41	%AAD		3.49

TABLE5.68 Vapor pressure and %AAD for Propylene & Propane system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Propylene & Propane	0.4,0.4674	230	1.135E-01	2.98E-02	1.134E-01	0.09	9.00E-02	1.114E-01	1.85
	0.7,0.7357		1.216E-01		1.209E-01	0.58		1.197E-01	1.56
						0.33	%AAD		1.71
	0.5,0.5567	240	1.763E-01	1.00E-03	1.705E-01	3.29	9.00E-02	1.755E-01	0.45
	0.6,0.6471		1.803E-01		1.799E-01	0.22		1.647E-01	8.65
	0.7,0.7351		1.834E-01		1.817E-01	0.93		8.820E-02	51.91
	0.8,0.8224		1.864E-01		1.855E-01	0.48		9.030E-02	51.56
				%AAD		1.23	%AAD		28.14
	0.6,0.6401	270	5.085E-01	2.80E-02	4.842E-01	4.78	9.10E-02	4.984E-01	2.00
	0.7,0.7314		5.176E-01		5.142E-01	0.66		2.530E-01	51.12
	0.8,0.8212		5.457E-01		4.781E-01	12.39		2.585E-01	52.63
				%AAD		5.94	%AAD		35.25

TABLE5.69 Vapor pressure and %AAD for n- Heptane & Toluene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
n-Heptane & Toluene	0.014,0.034	341.8	2.666E-02	7.80E-02	2.658E-02	0.28	1.00E+00	2.666E-02	0.00
	0.081,0.161	340.0			2.590E-02	2.84		2.666E-02	0.00
	0.086,0.171	339.9			2.654E-02	0.46		2.665E-02	0.05
	0.169,0.282	338.2			1.922E-02	27.89		2.059E-02	22.77
				%AAD		7.87	%AAD		5.71
	0.007,0.019	308.9	6.660E-03	0.14	6.298E-03	5.44		6.346E-03	4.71
	0.039,0.087	308.7			6.077E-03	8.75		6.180E-03	7.21
	0.078,0171	306.7			6.646E-03	0.21		6.652E-03	0.12
				%AAD		4.80	%AAD		4.01

TABLE5.70 Vapor pressure and %AAD for Propylene & 1,3 Butadiene system using Quartic EOS and Peng - Robinson EOS

System	x_1, y_1	T	Pex	QEOS			PR-EOS		
		K	MPa	Kij	Pcal	%dev.	Kij	Pcal	%dev.
Propylene & 1,3 Butadiene	0.0763,0.291	273.2	1.603E-01	3.00E-03	1.300E-01	18.93	8.00E-03	4.500E-02	71.93
	0.282,0.652		2.516E-01		1.880E-01	25.29		1.313E-01	47.82
						22.11	%AAD		59.87
	0.0430,0.160	293.2	2.792E-01	5.00E-03	1.208E-01	56.74	1.00E+00	2.748E-01	1.58
				%AAD		56.74	%AAD		1.58

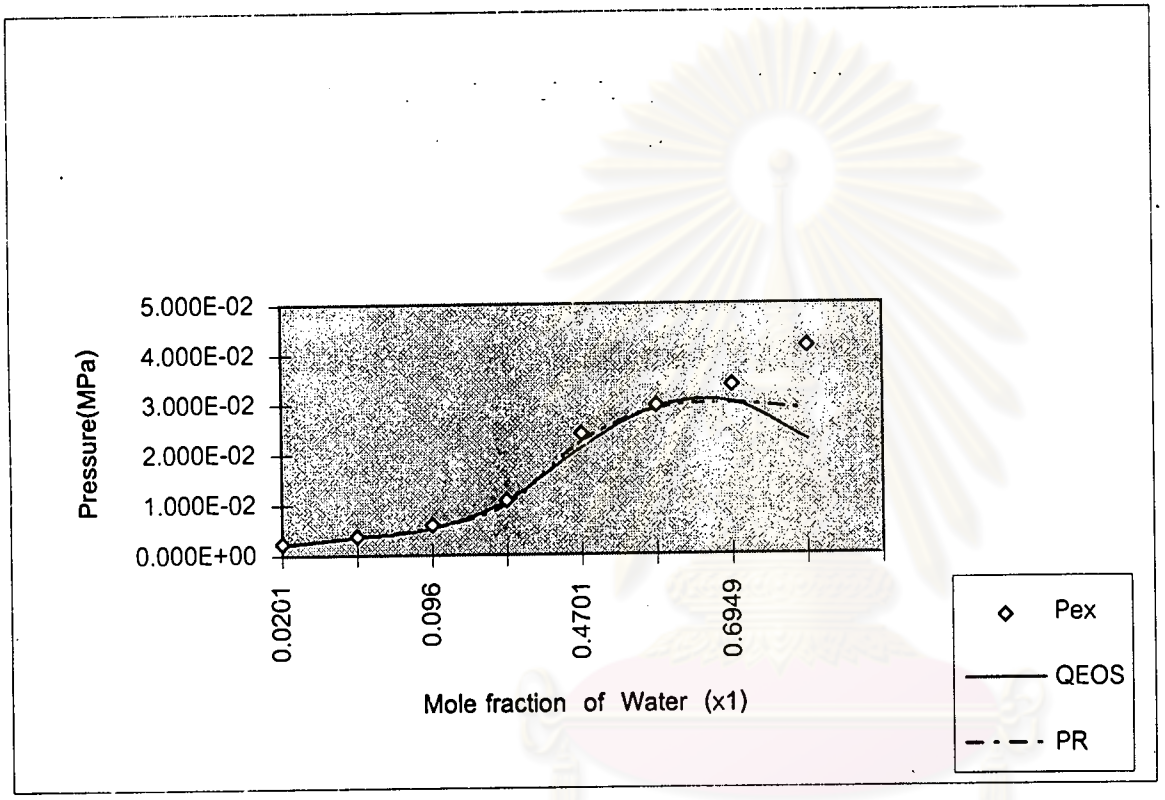

Figure 5.1 Saturation pressure of Water & 1,2 Propanediol at 353 K

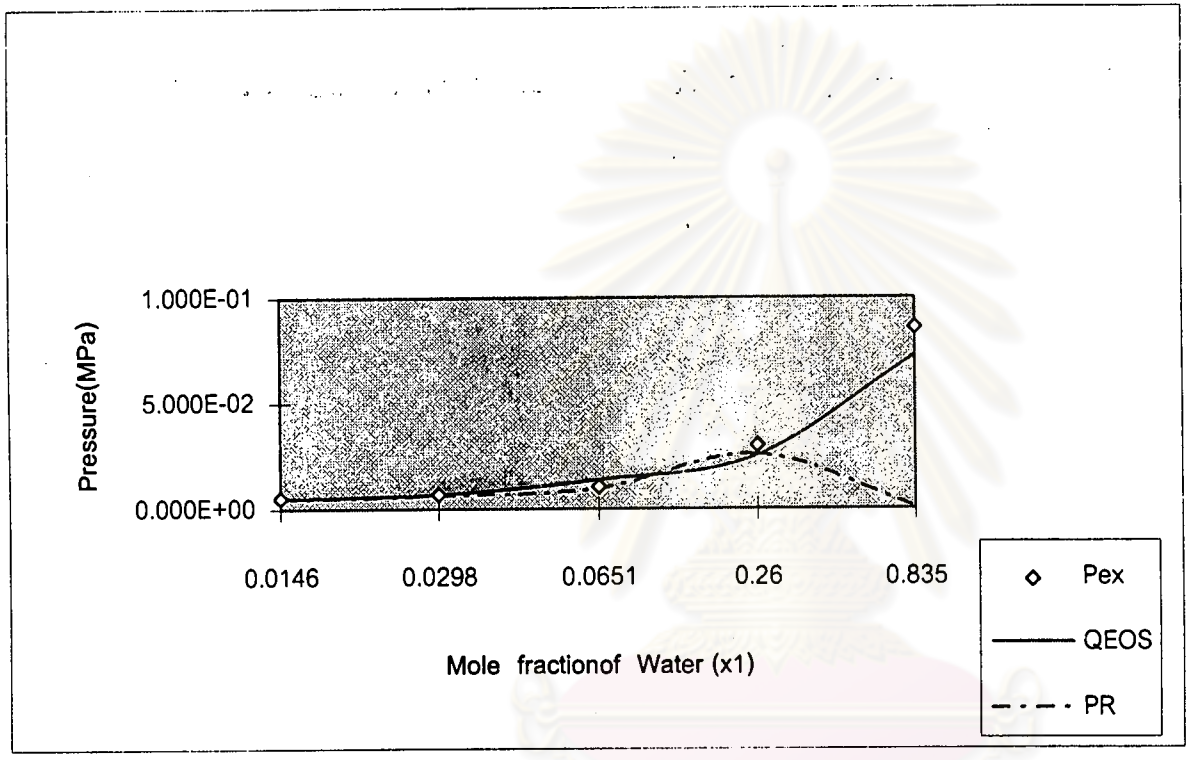

Figure 5.2 Saturation pressure of Water & 1,2 Propanediol at 373 K

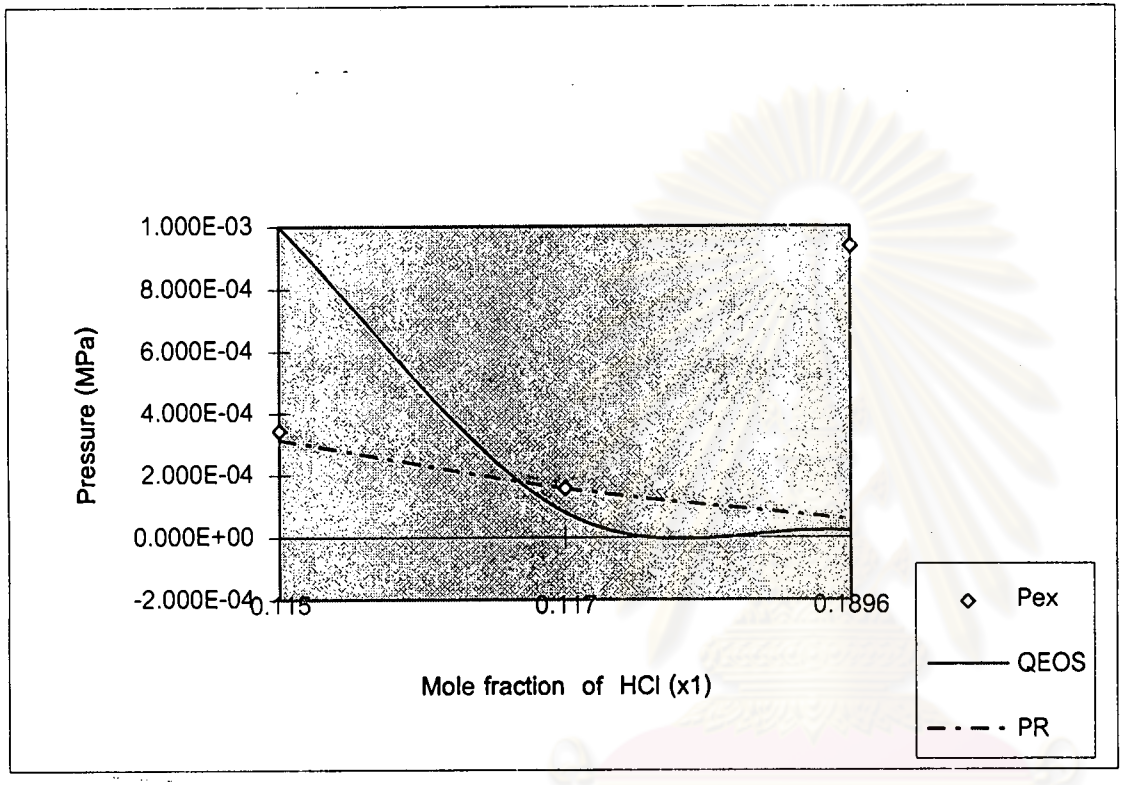

Figure 5.3 Saturation pressure of Water & HCl at 353 K

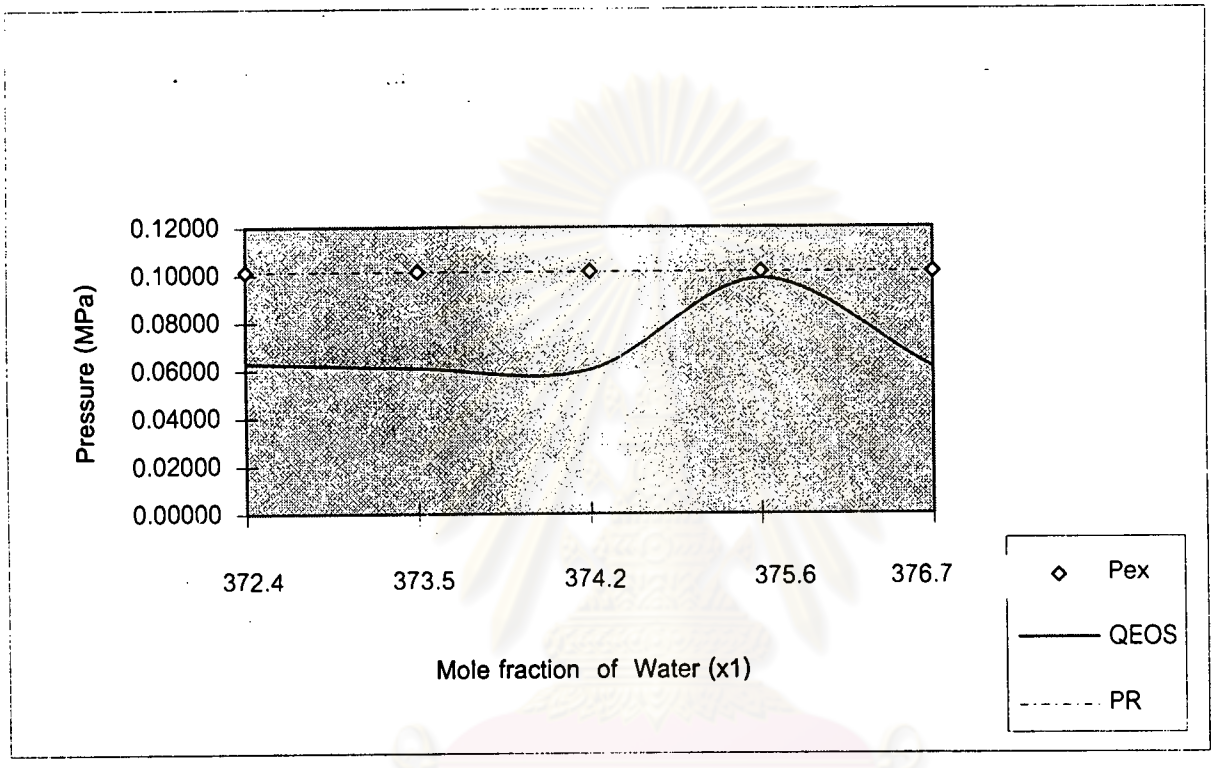

Figure 5.4 Saturation pressure of Water & Ethanol

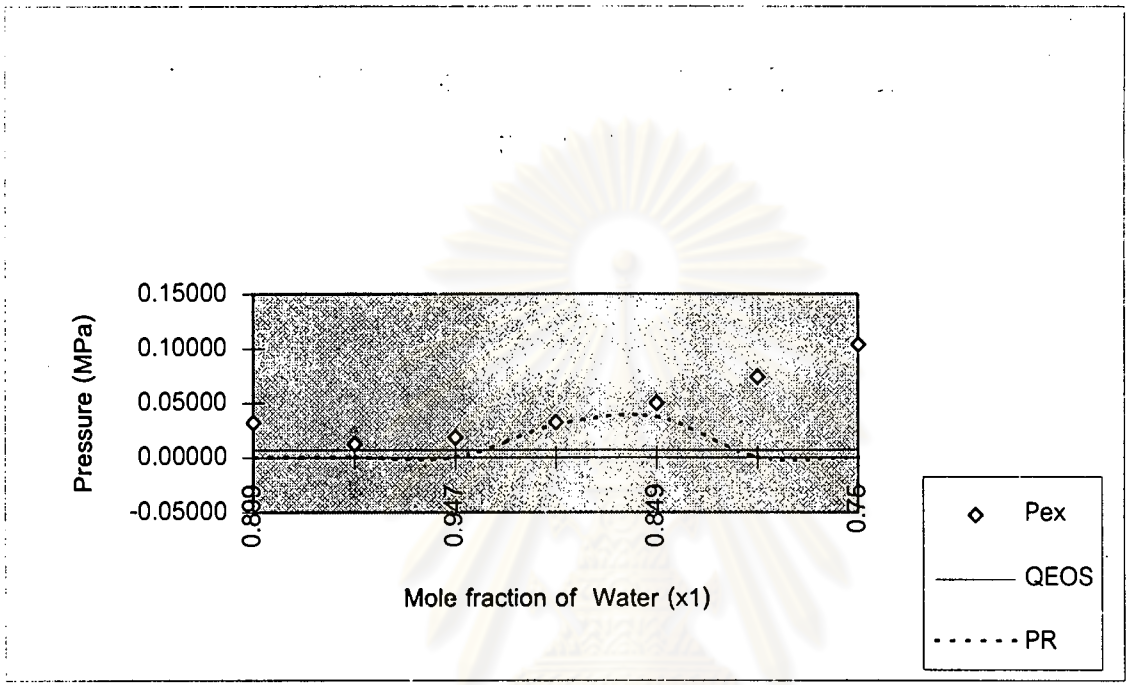

Figure 5.5 Saturation pressure of Water & ammonia at 313.15 K

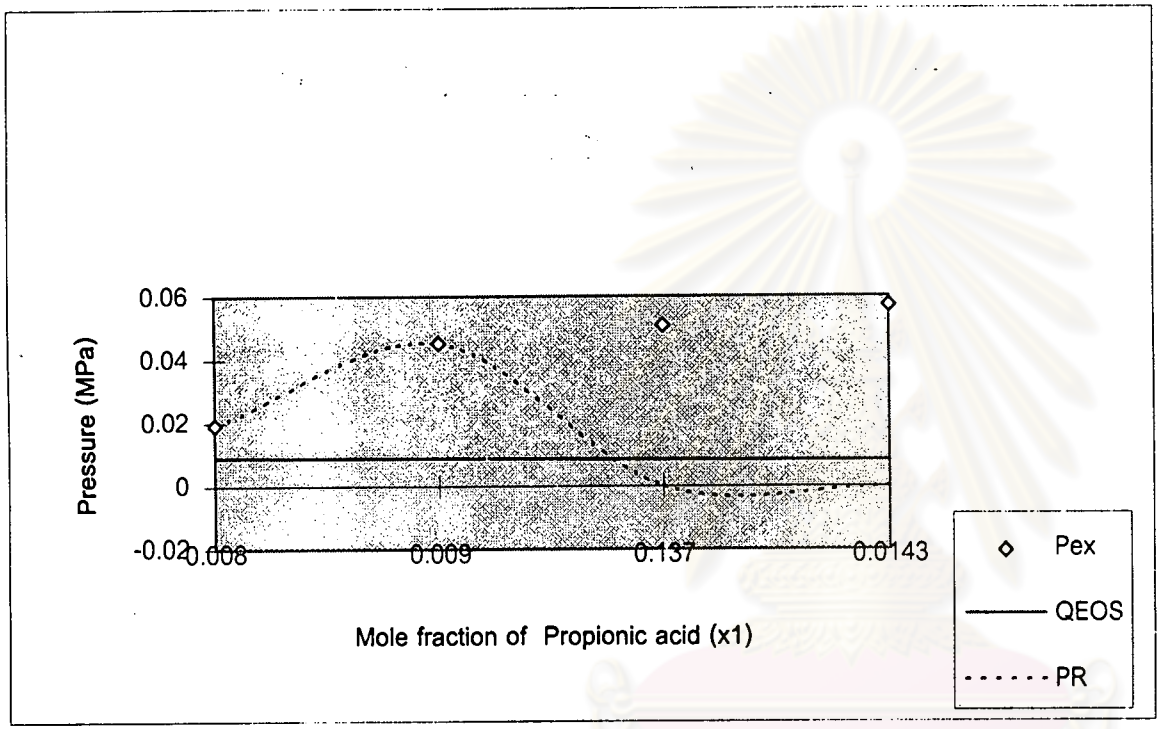

Figure 5.6 Saturation pressure of Propionic acic & Phenol at 403.2 K

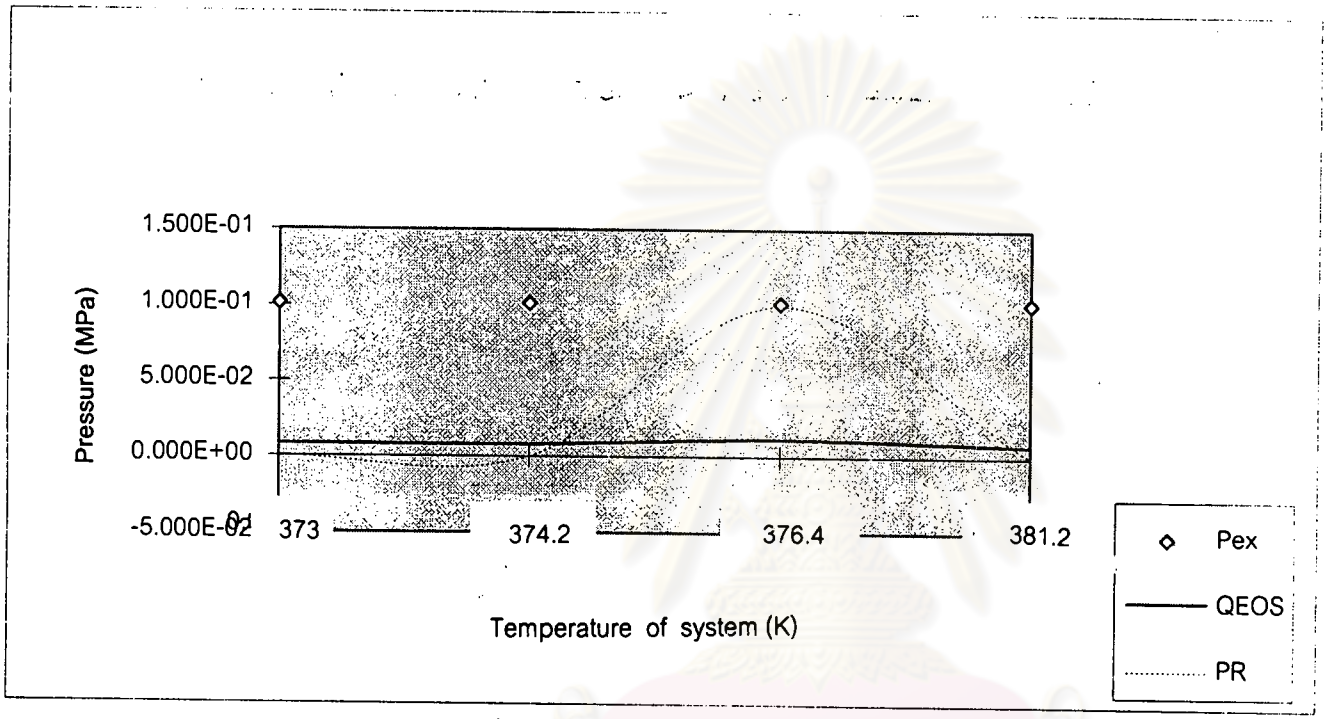

Figure 5.7 Saturation pressure of Water & Methanol

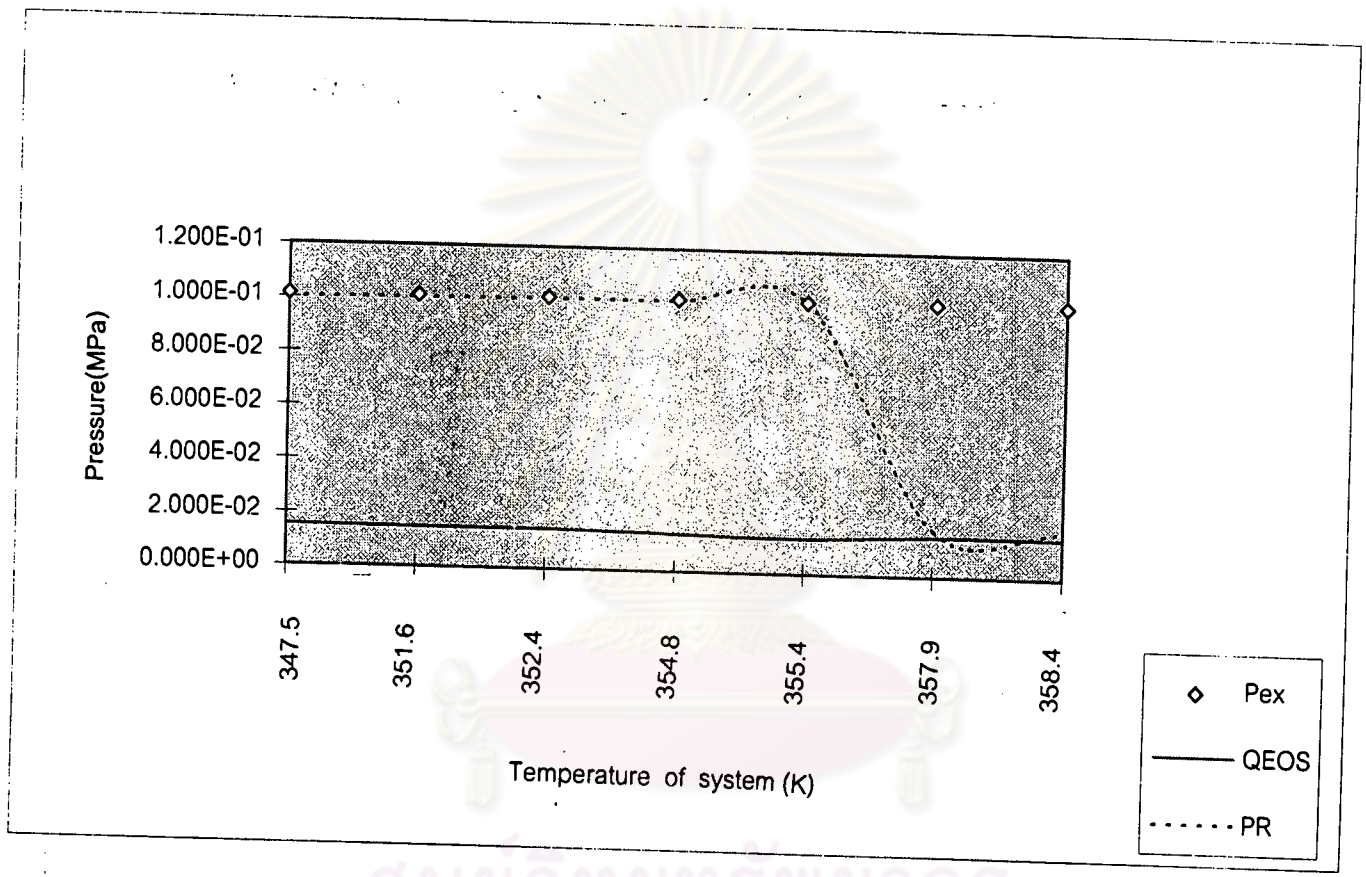

Figure 5.8 Saturation pressure of Water & Ethanol

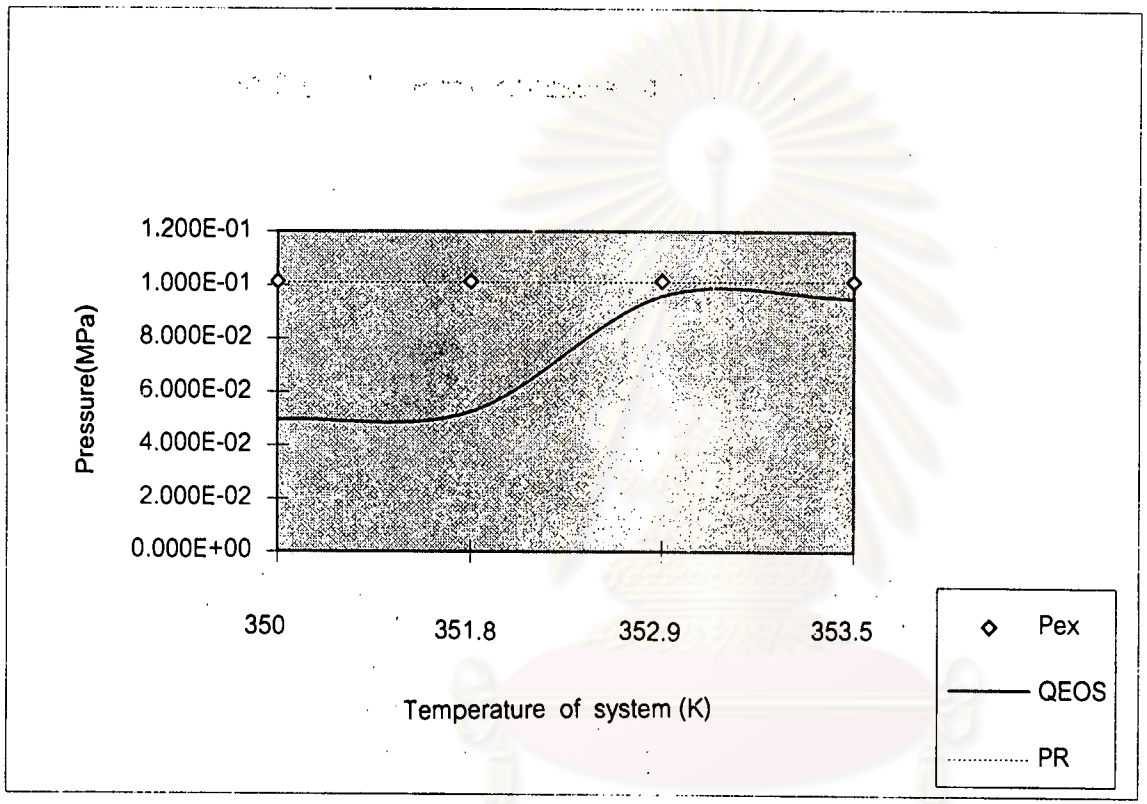

Figure 5.9 Saturation pressure of Water & 1-Propanol

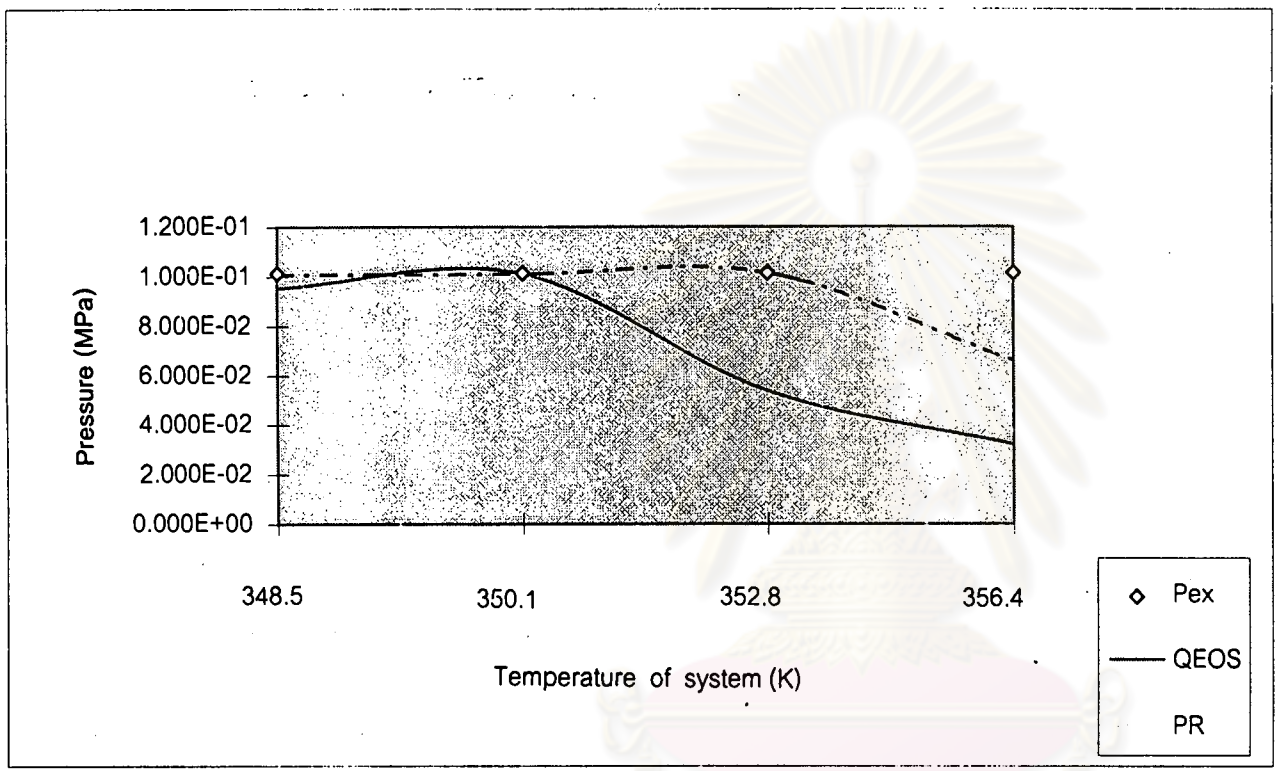

Figure 5.10 Saturation pressure of Water & 2-Propanol

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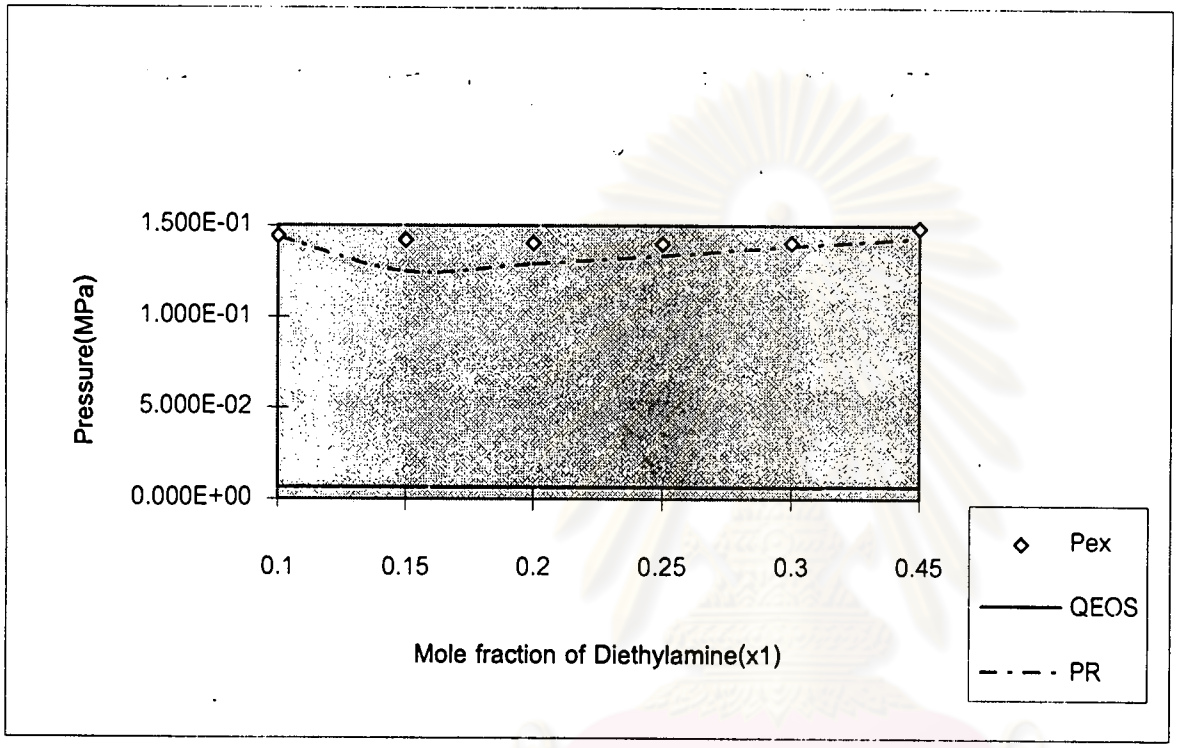


Figure 5.11 Saturation pressure of Diethylamine& Methanol at 348.09K

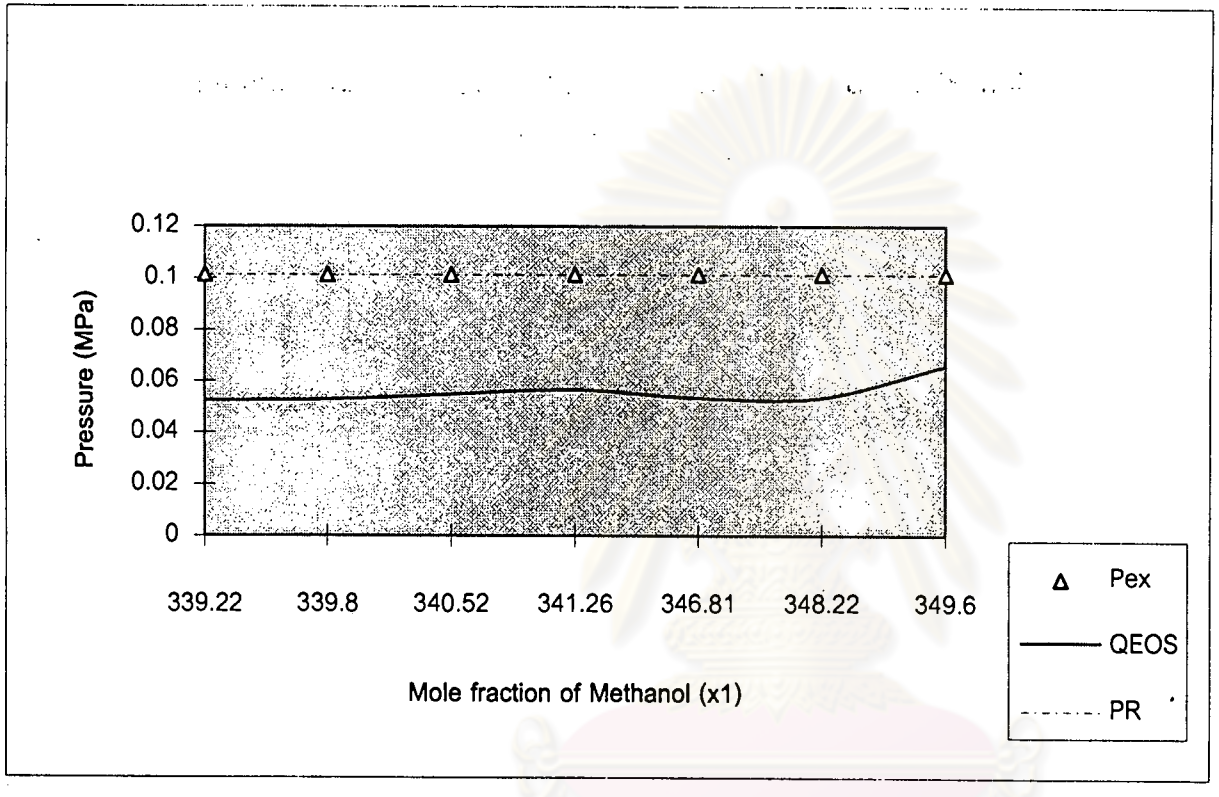


Figure 5.12 Saturation pressure of Methanol & Ethanol at 0.1013 MPa

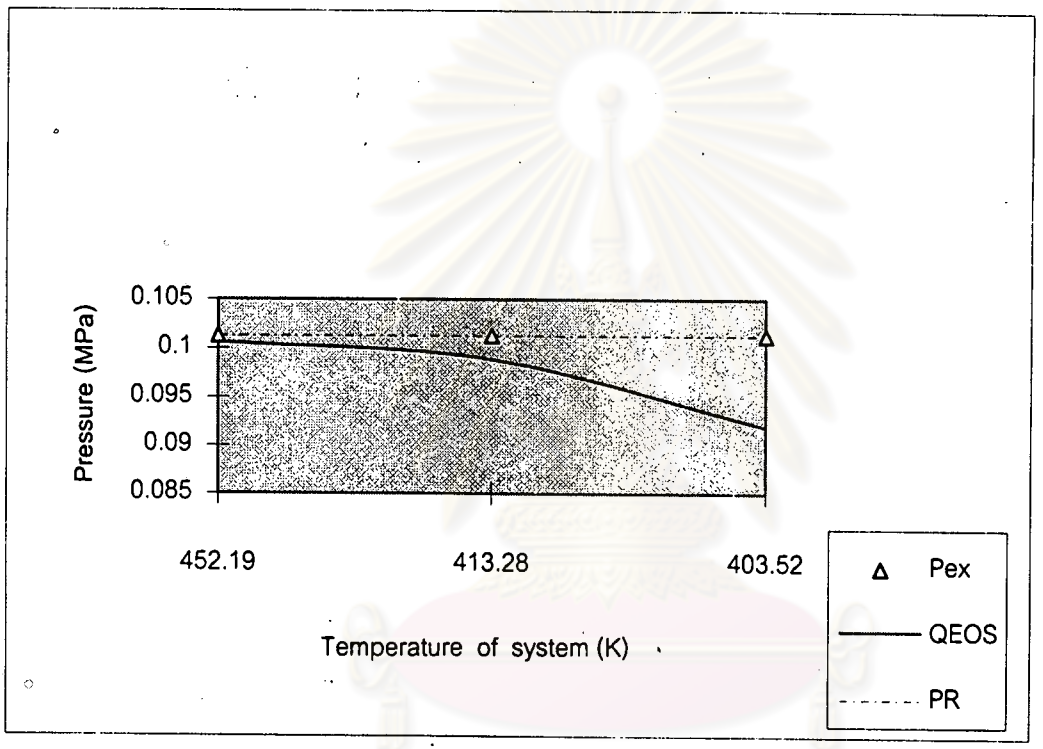


Figure 5.13 Saturation pressure of Methanol& 1- Octanol at 0.1013 MPa

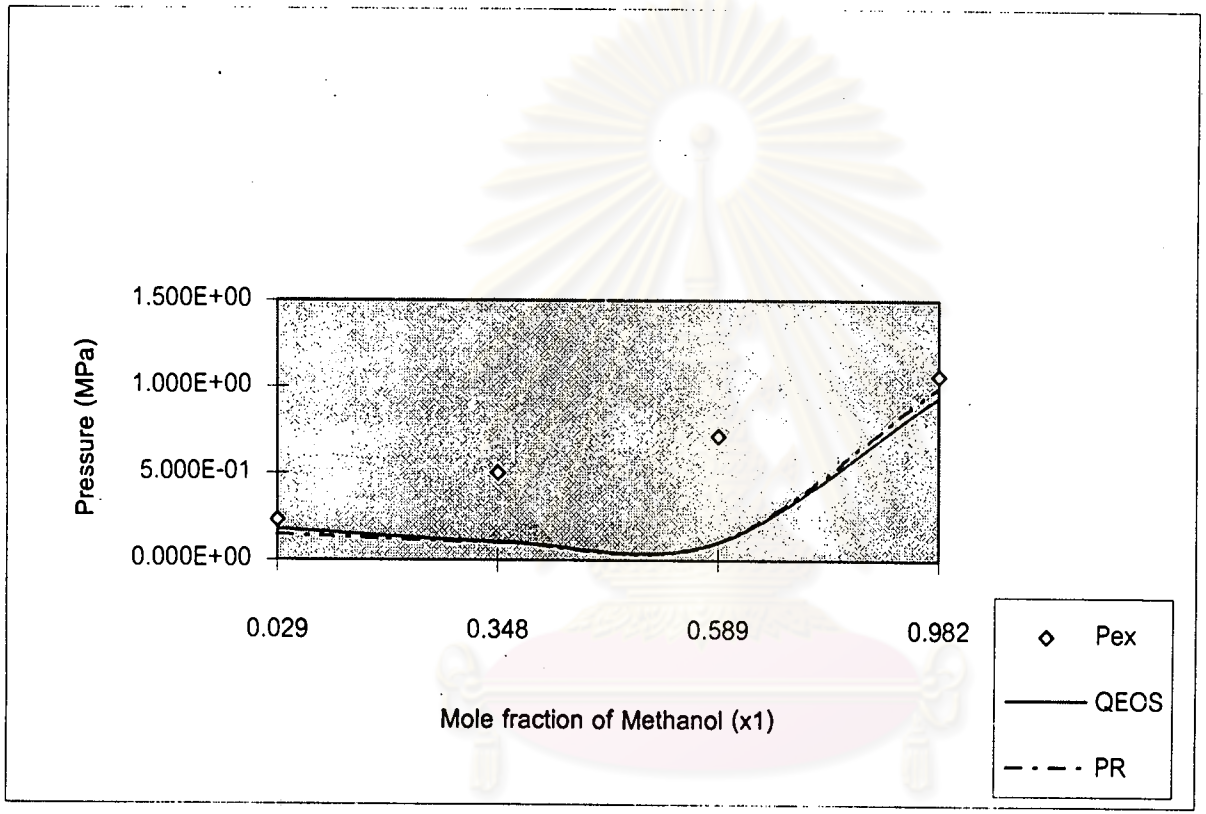


Figure 5.14 Saturation pressure of Pyridine & Methanol at 413.2 K

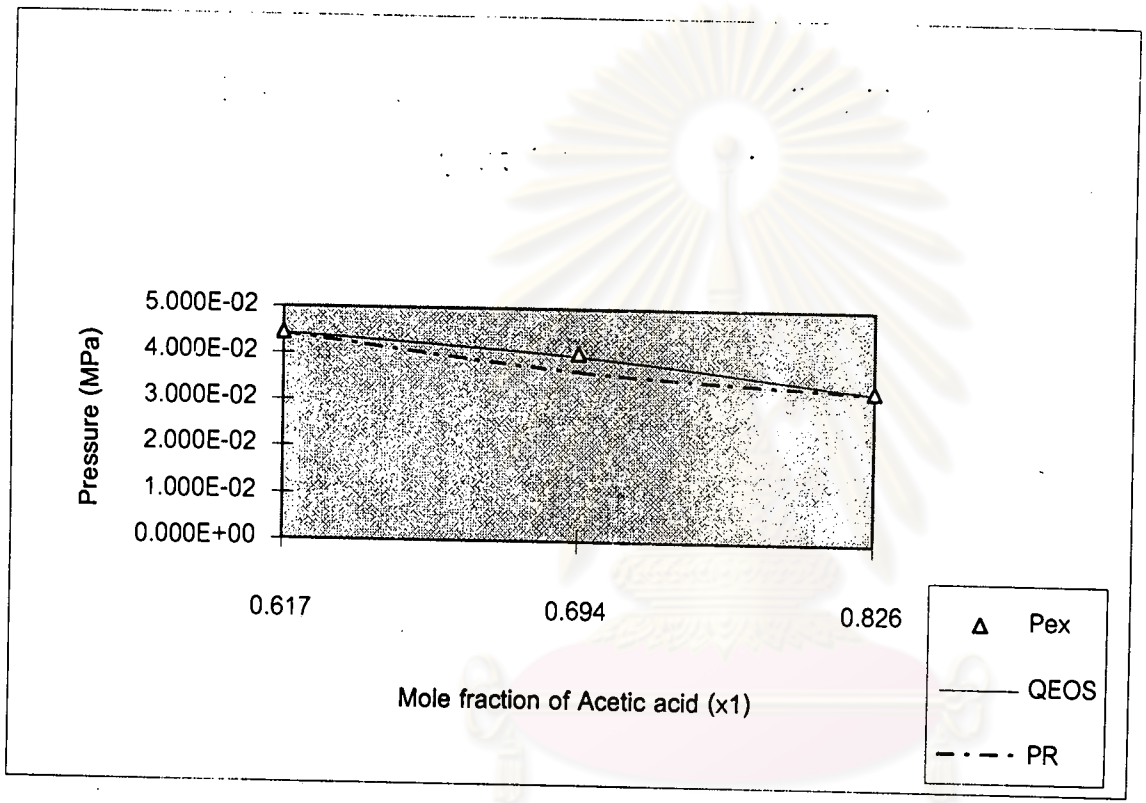


Figure 5.15 Saturation pressure of Water & 1,2 Propanediol at 353 K

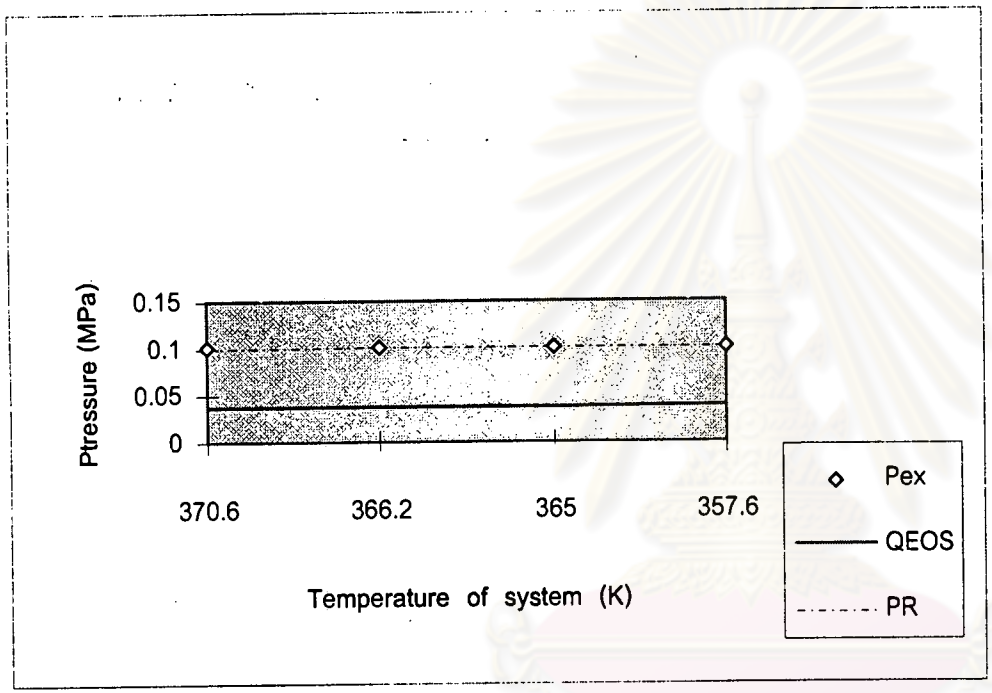


Figure 5.16 Saturation pressure of Acetic acid &Ethyl acetate at 343.2 K

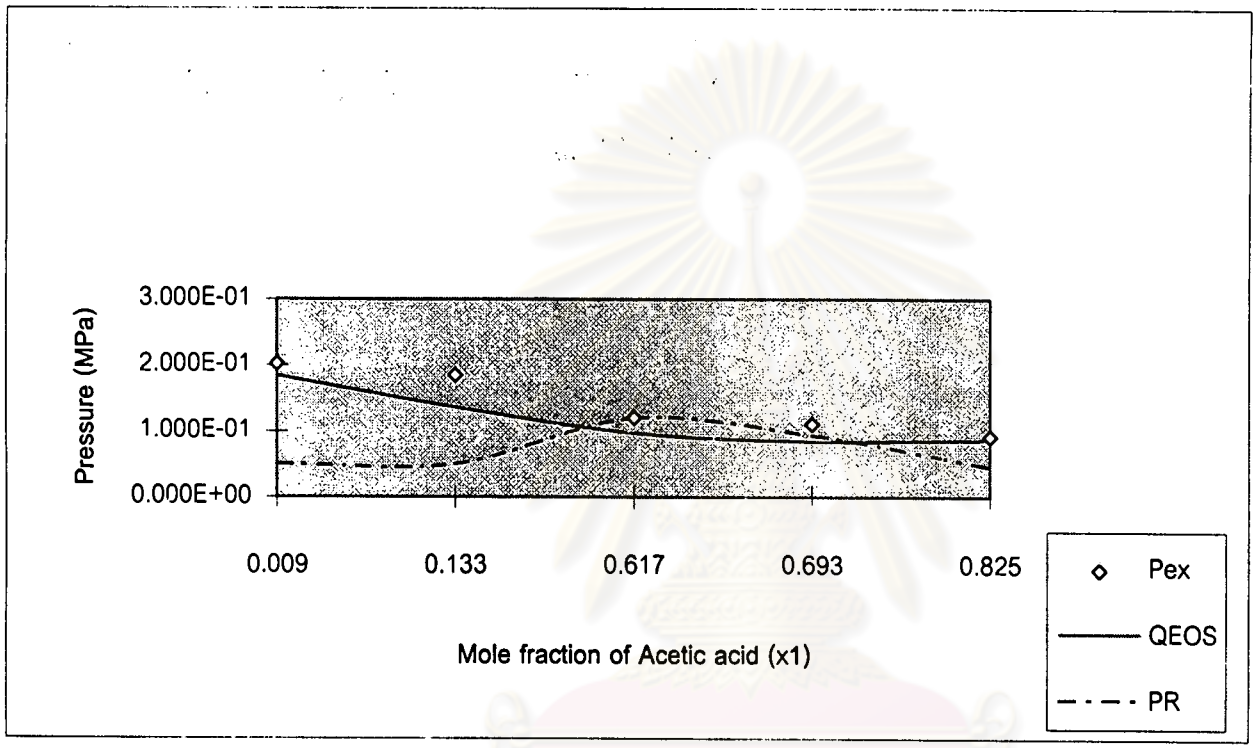


Figure 5.17 Saturation pressure of Acetic acid & Ethyl acetate at 373.2 K

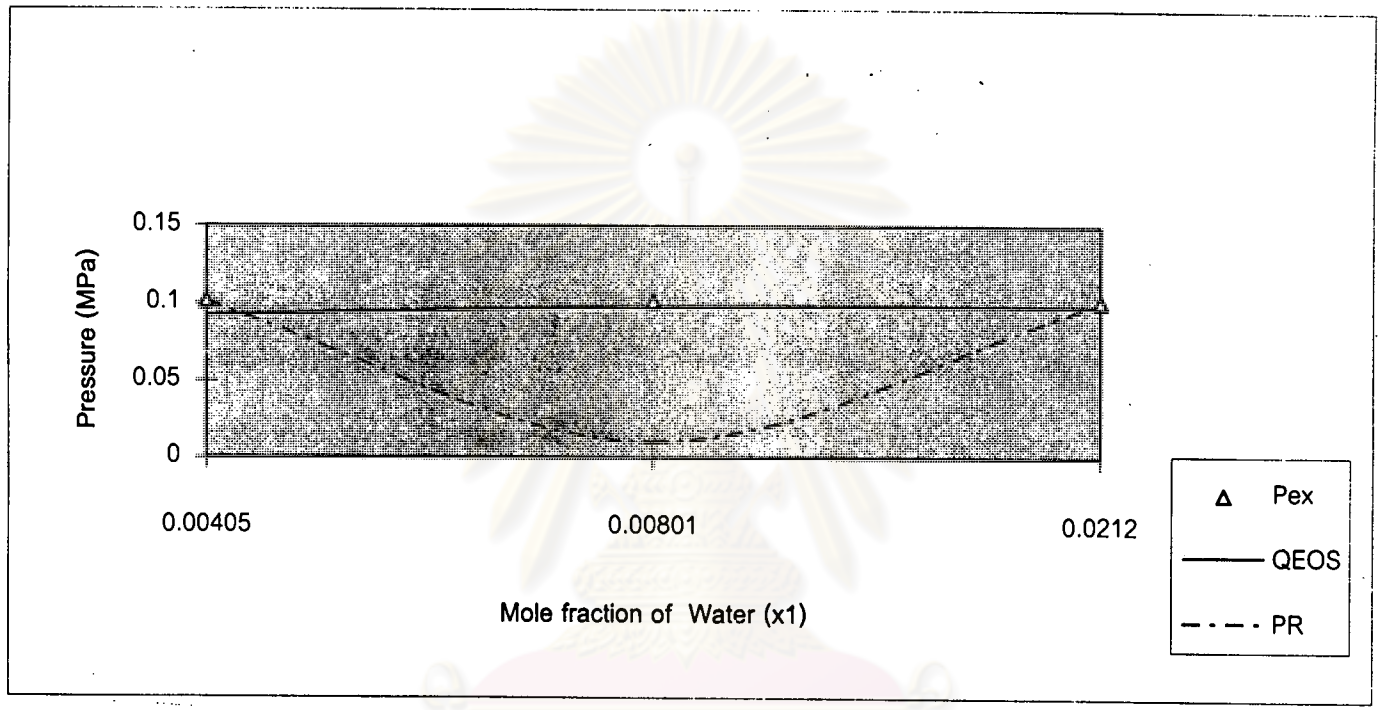


Figure 5.18 Saturation pressure of Water & Methyl Ethyl Ketone at 298 K

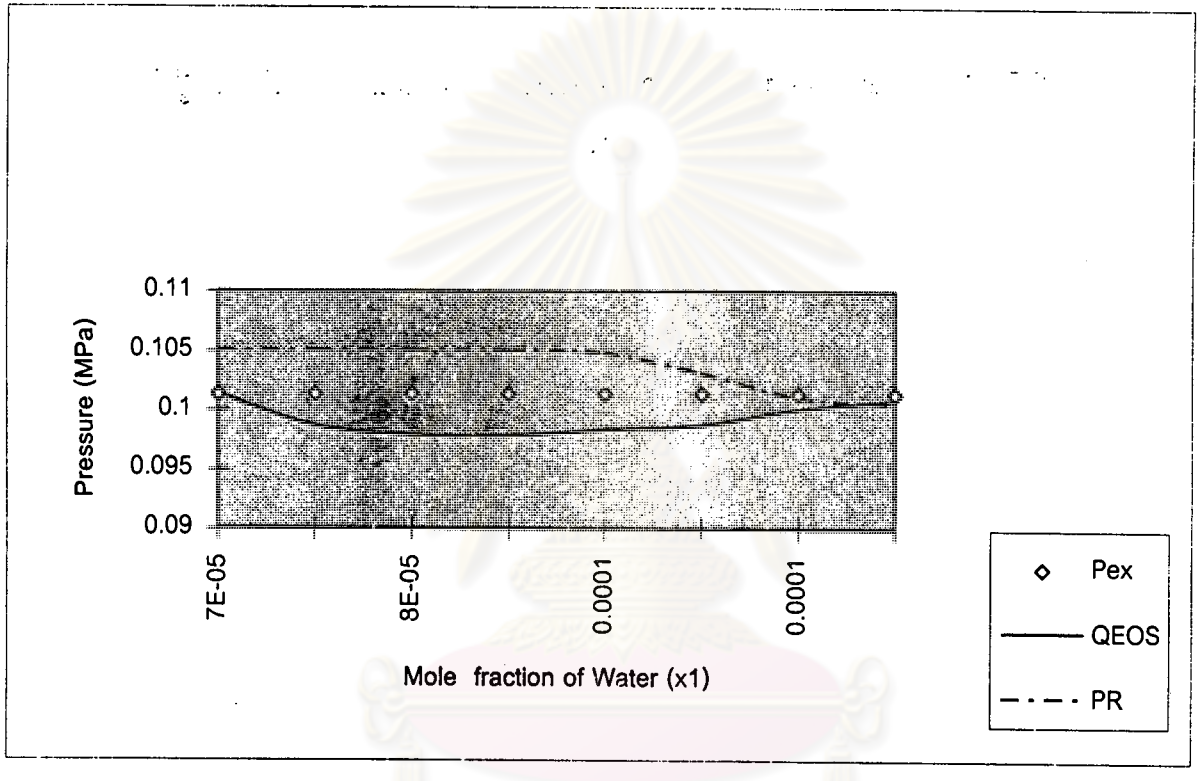


Figure 5.19 Saturation pressure of Water & Acetone at 298 K

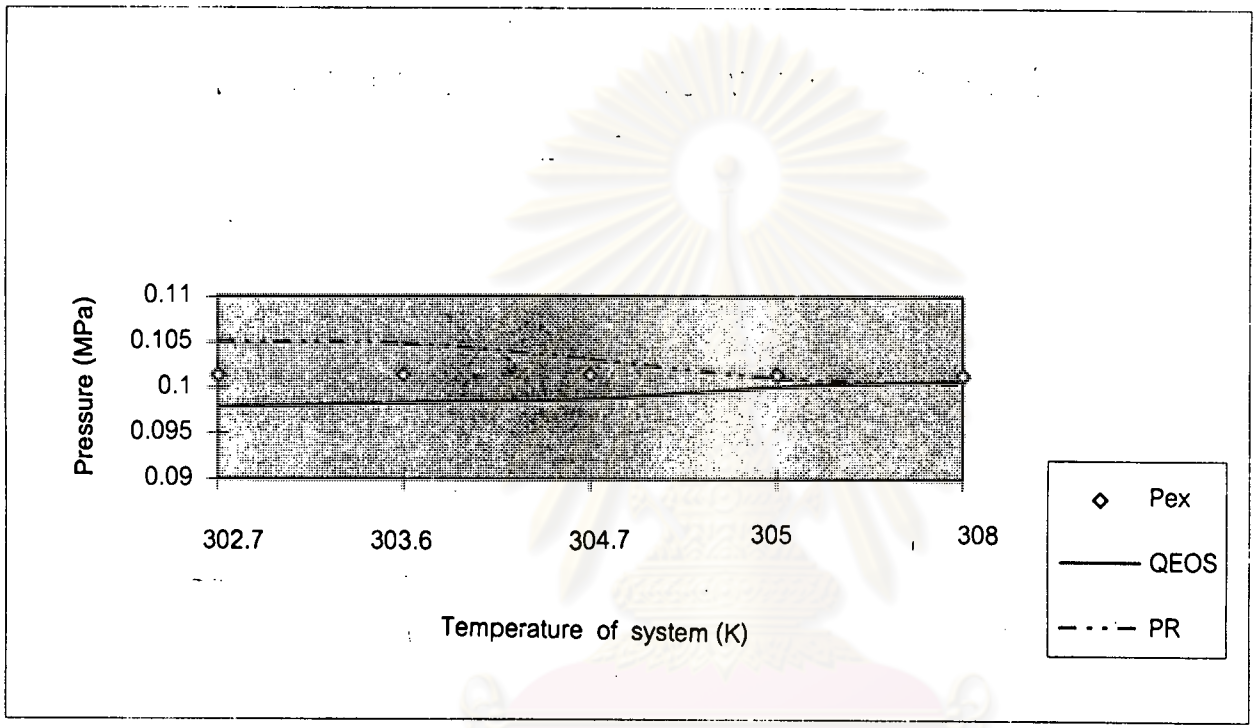


Figure 5.20 Saturation pressure of Water & Ethyl acetate at 0.1013 MPa

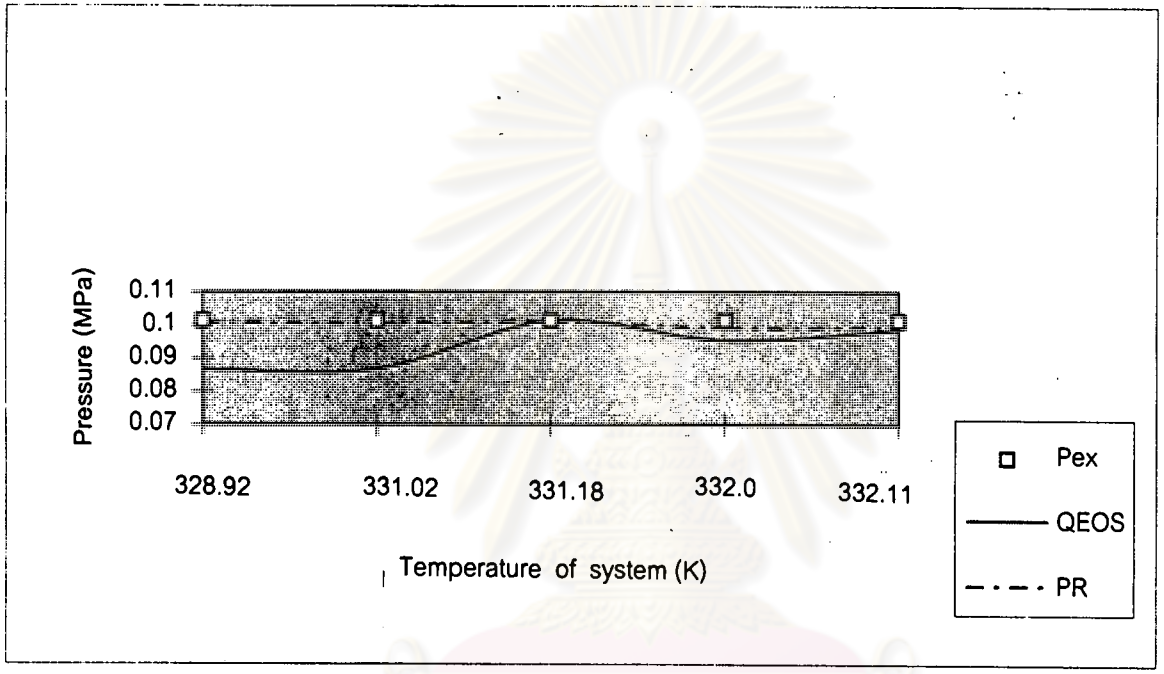


Figure 5.21 Saturation pressure of Methanol & Acetone at 0.1013 MPa

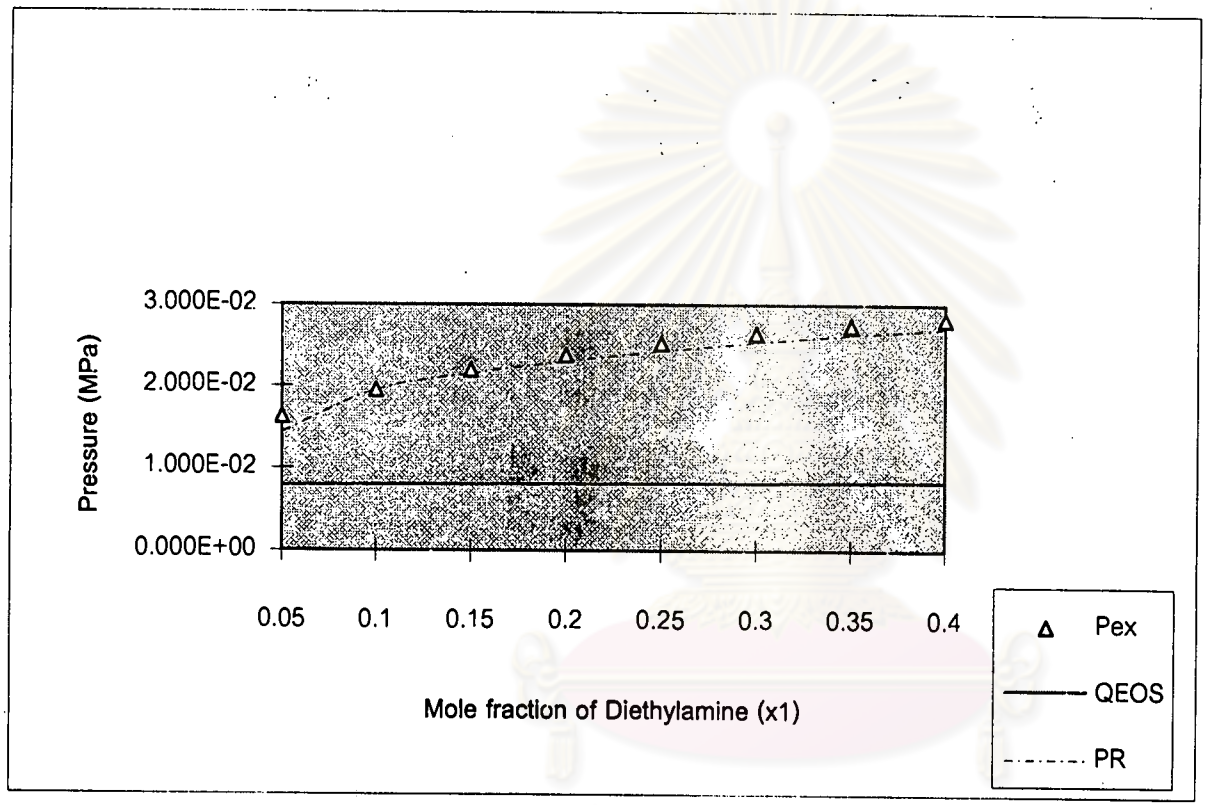


Figure 5.22 Saturation pressure of Diethylamine & Acetonitrile at 298 K

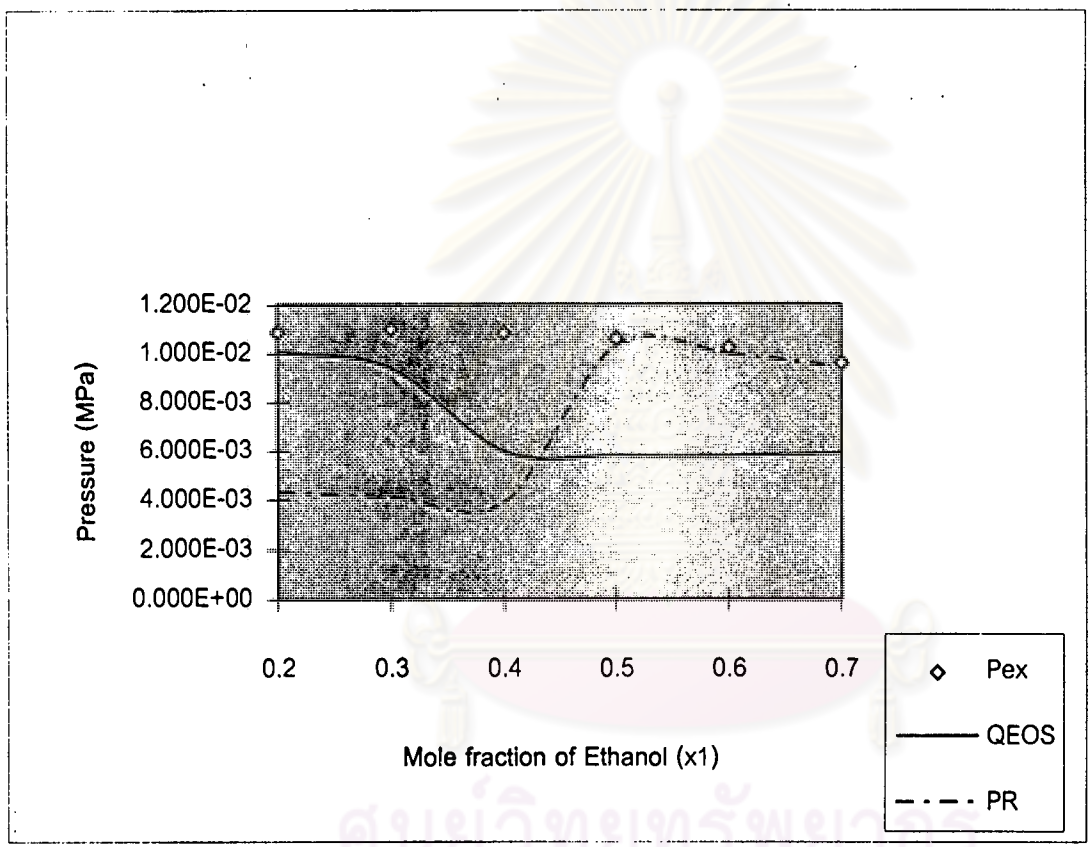


Figure 5.23 Saturation pressure of Ethanol & Acetonitrile at 293.15K

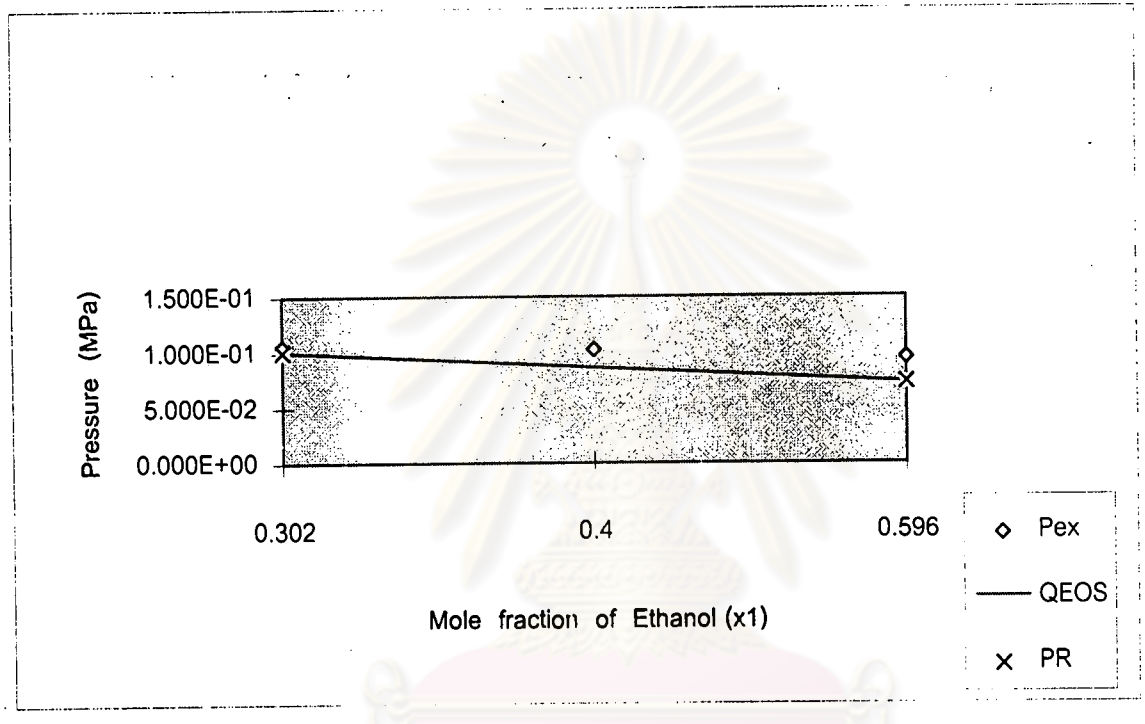


Figure 5.24 Saturation pressure of Ethanol & Isopropyl acetate at 382 K

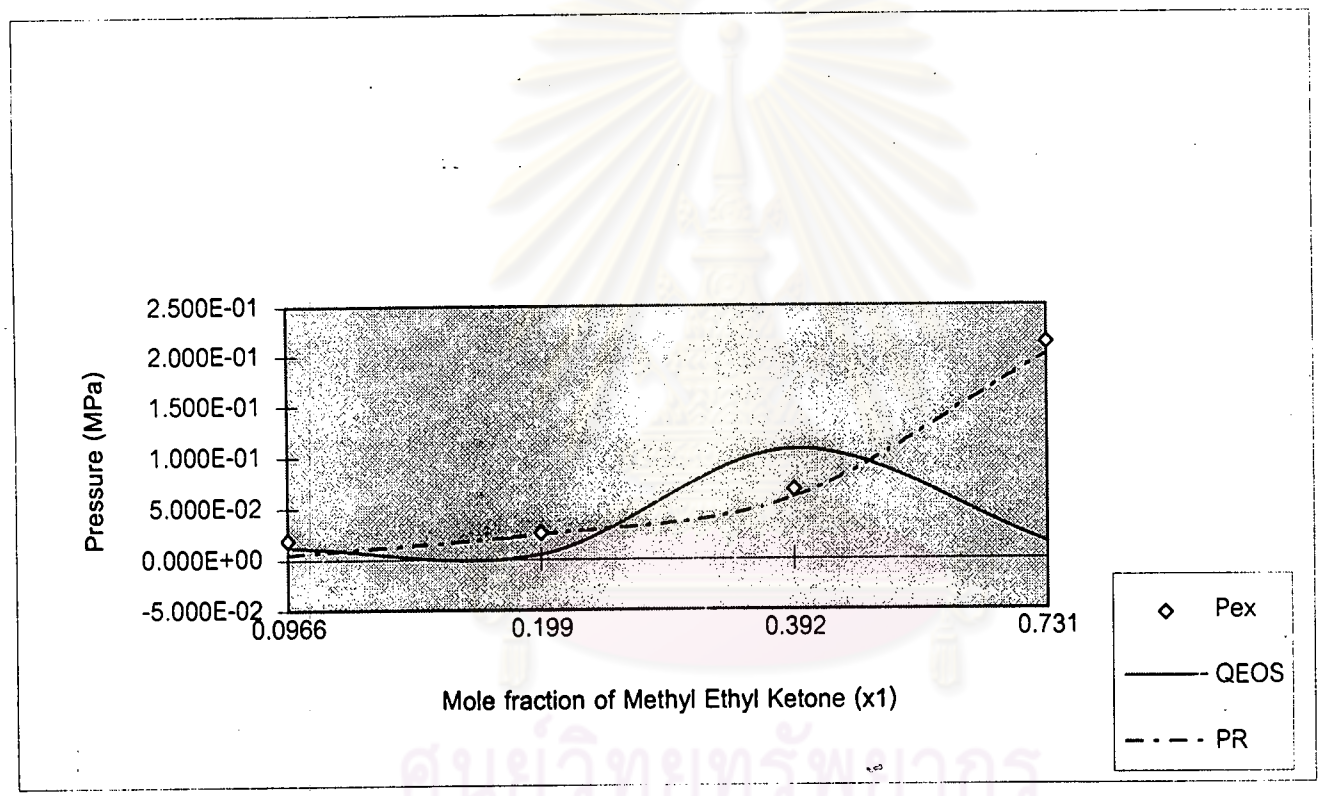


Figure 5.25 Saturation pressure of Phenol & Methyl Ethyl Ketone at 393.20K

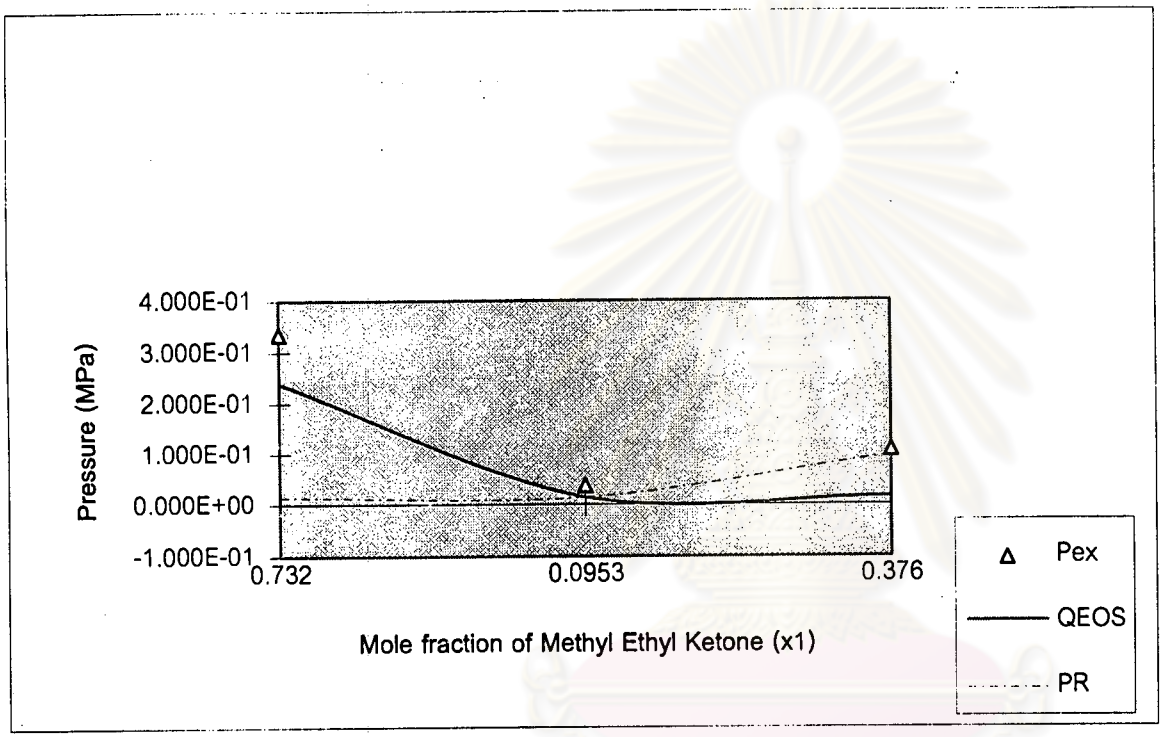


Figure 5.26 Saturation pressure of Phenol & Methyl Ethyl Ketone at 413.2K

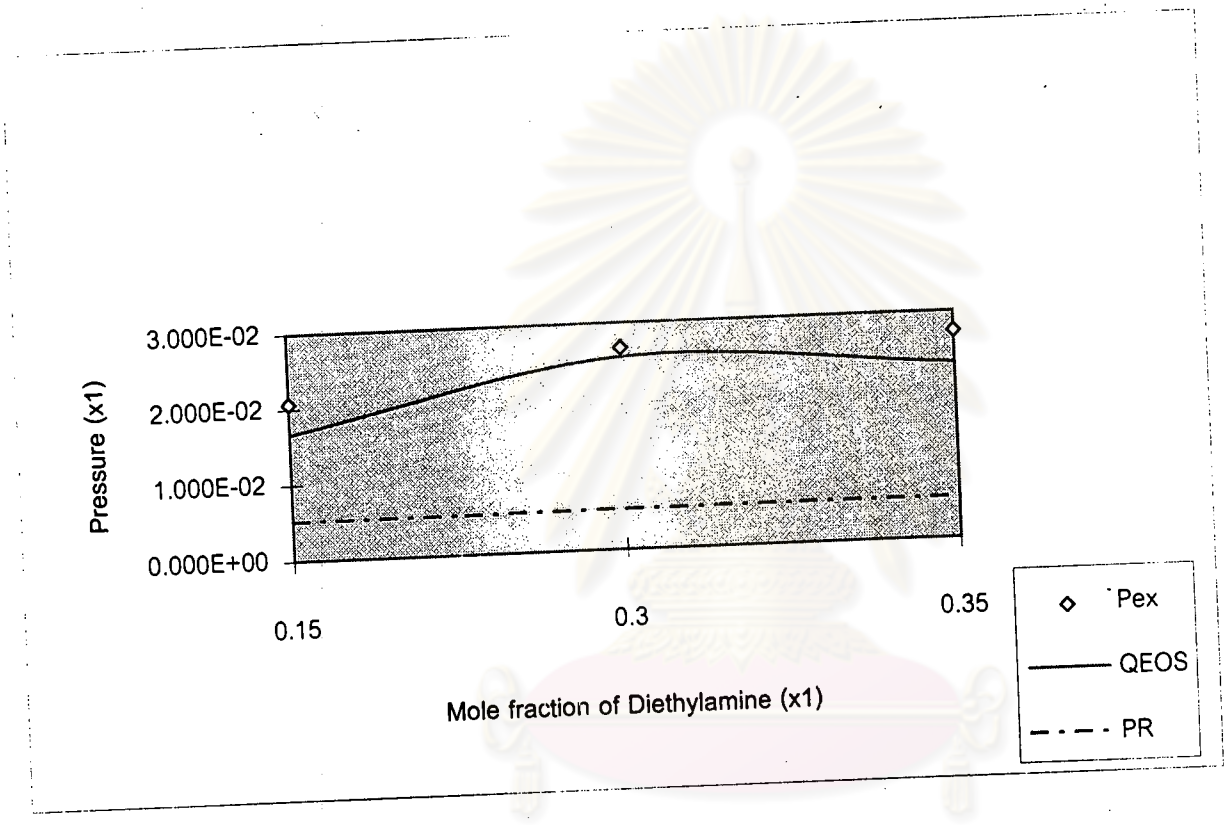


Figure 5.27 Saturation pressure of Diethylamine & Acetonitrile at 298 K

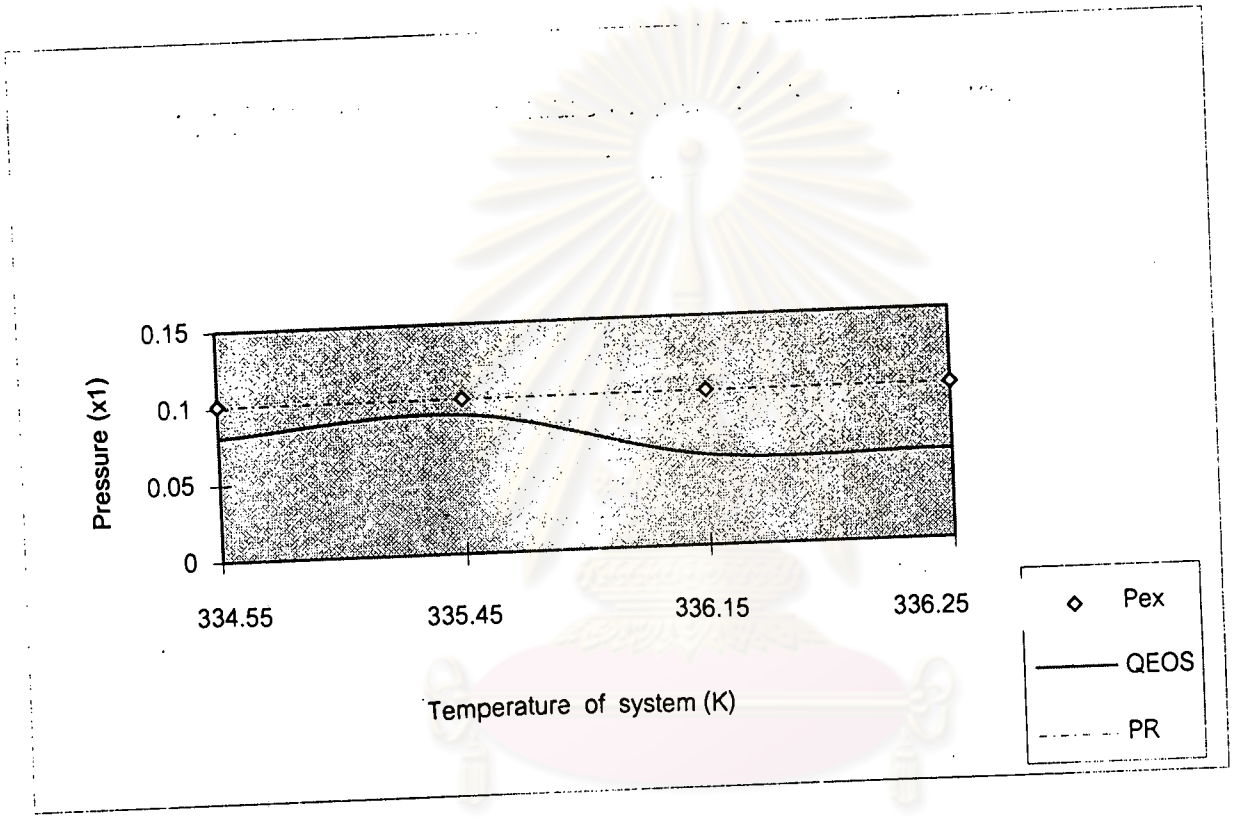


Figure 5.28 Saturation pressure of Diethylamine & Chloroform at 0.1013 MPa

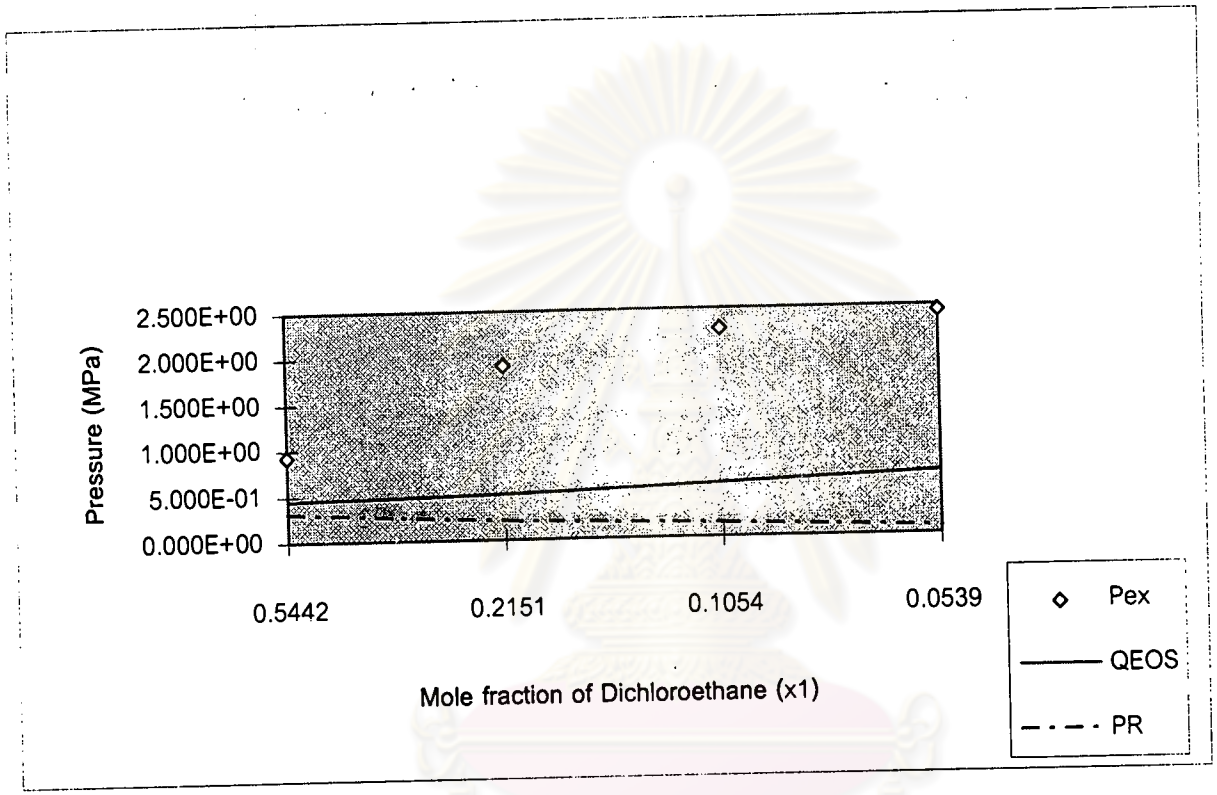


Figure 5.29 Saturation pressure of HCl & Dichloroethane at 273K

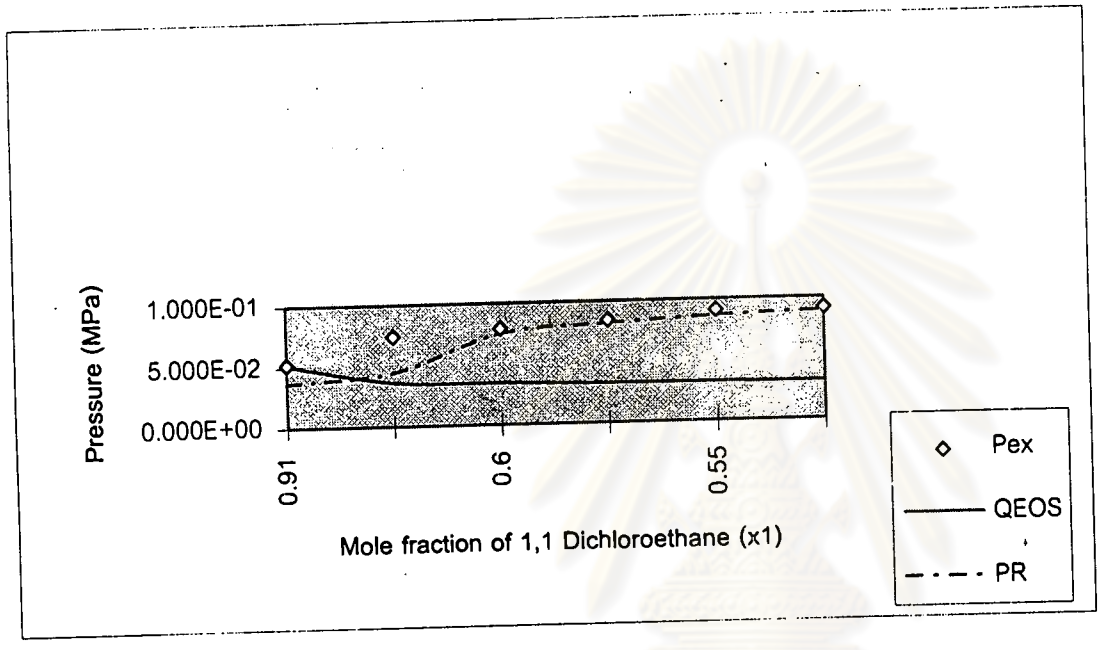


Figure 5.30 Saturation pressure of Acetaldehyde & 1,1 Dichloroethane at 303 K

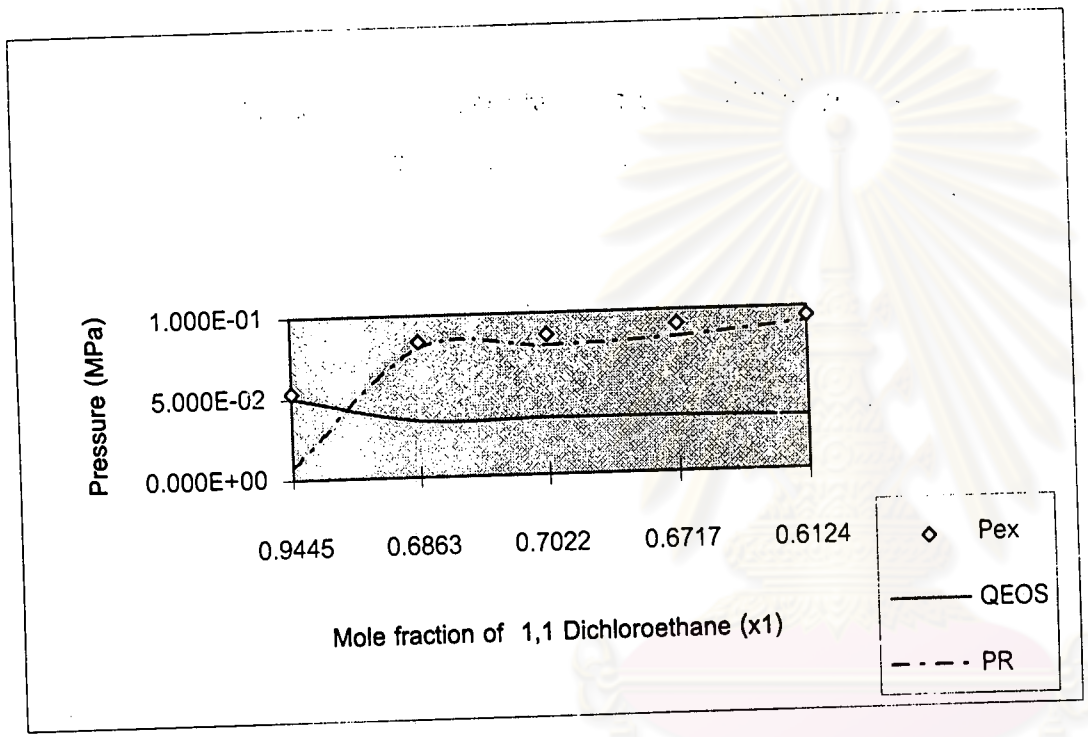


Figure 5.31 Saturation pressure of Acetaldehyde& 1,1 Dichloroethane at 306 K

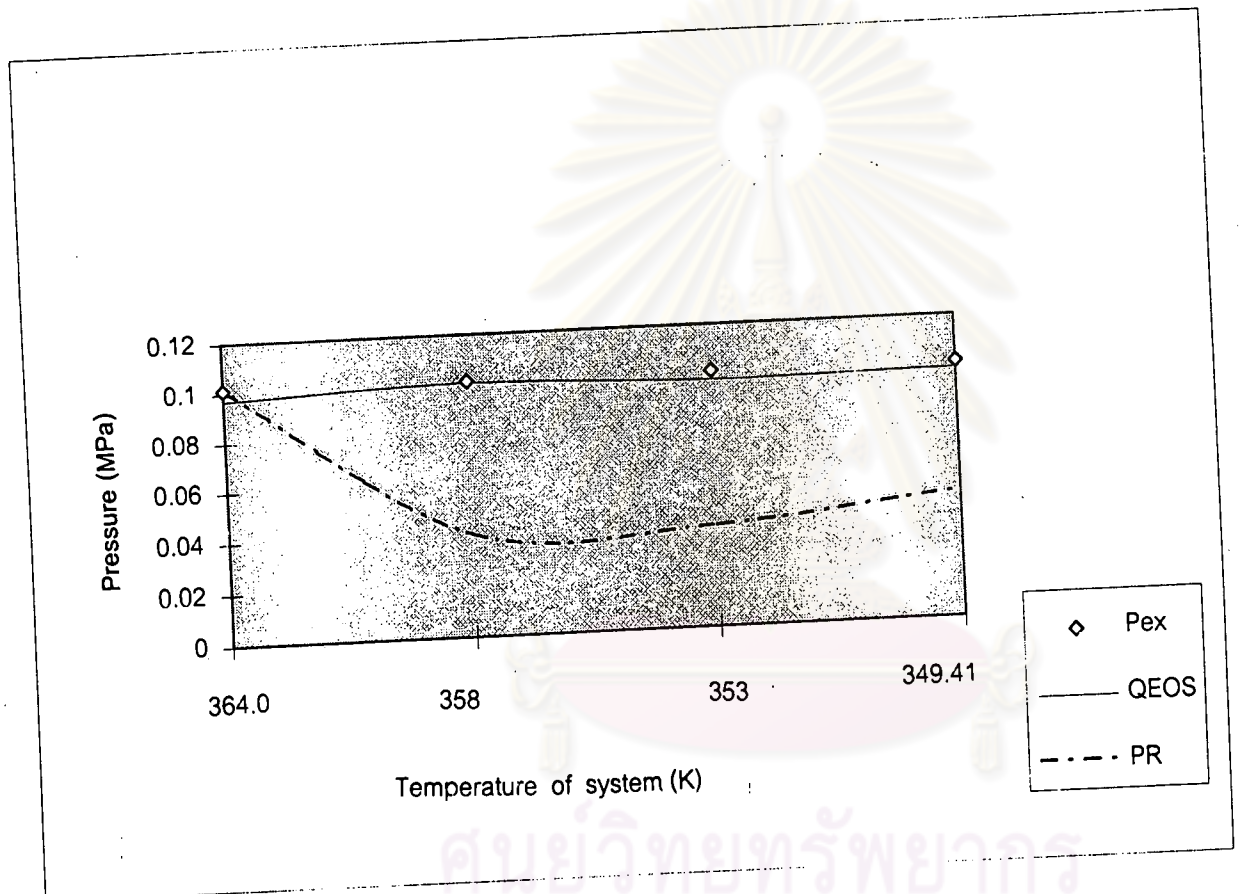


Figure 5.32 Saturation pressure of Propionic acid & Carbontetrachloride at 0.1013 MPa

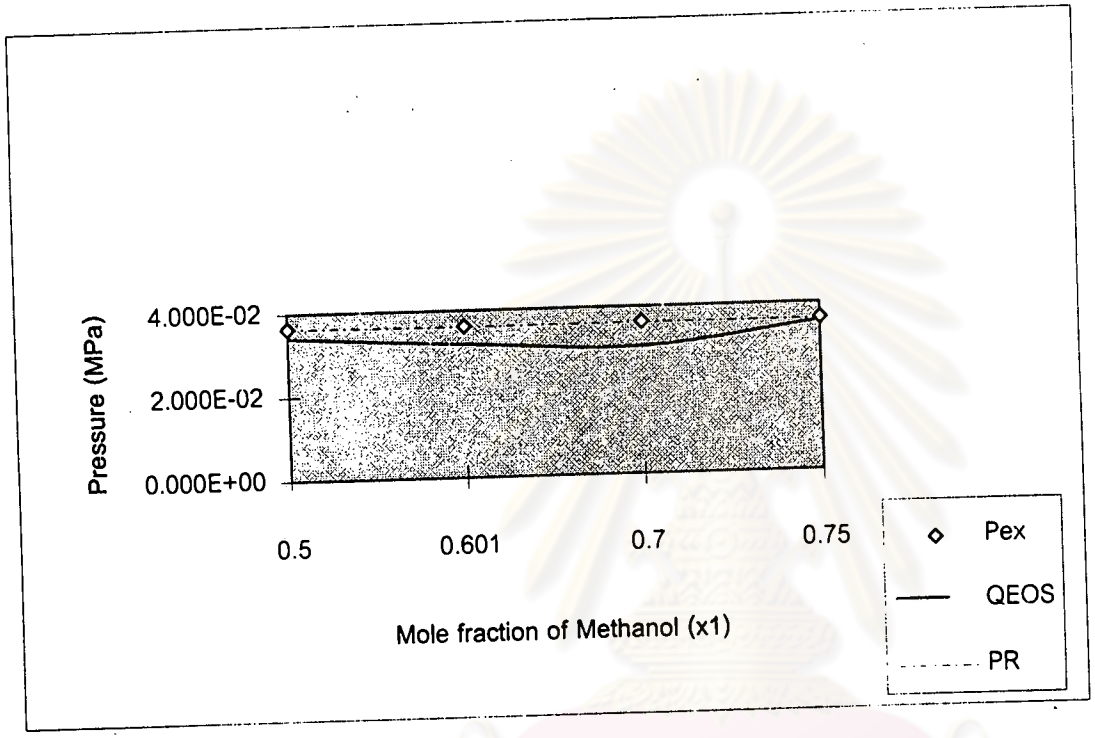


Figure 5.33 Saturation pressure of Methanol & Hexane at 298.15 K

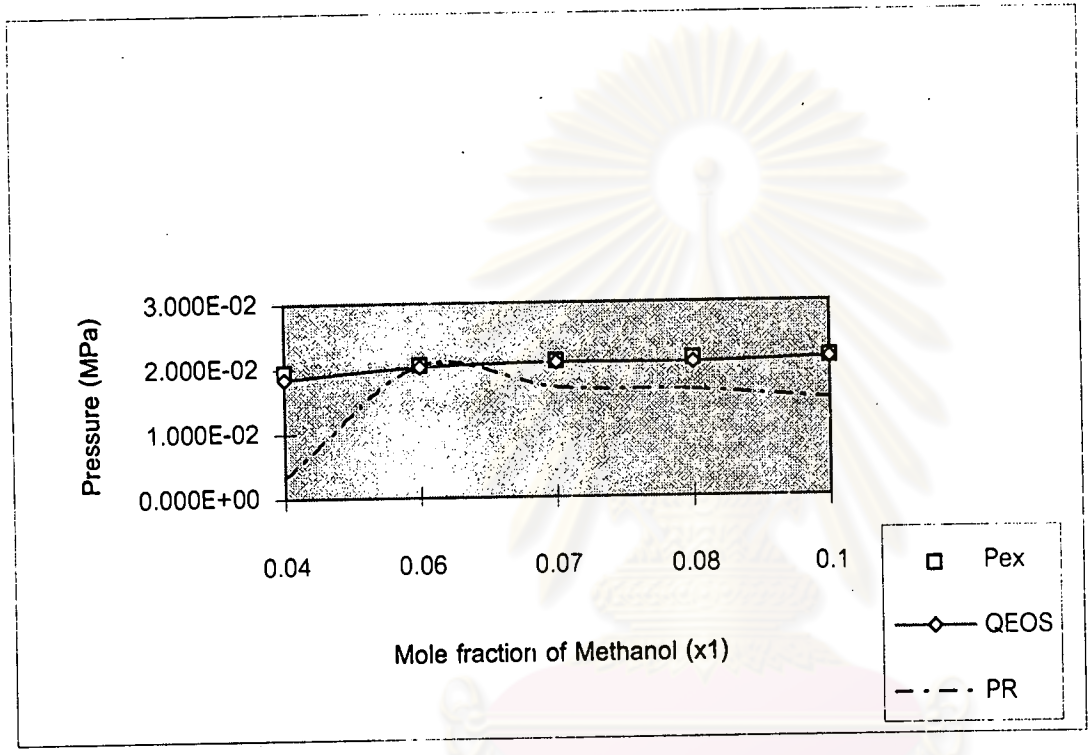


Figure 5.34 Saturation pressure of Methanol & Heptane at 298.15 K

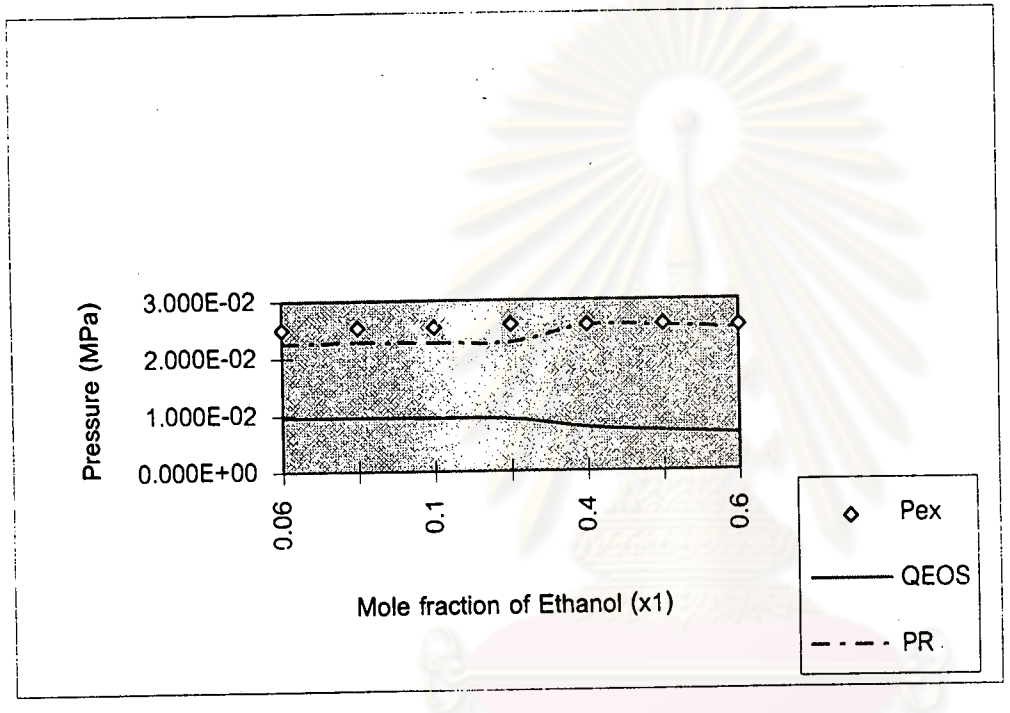


Figure 5.35 Saturation pressure of Ethanol & Hexane at 298.15 K

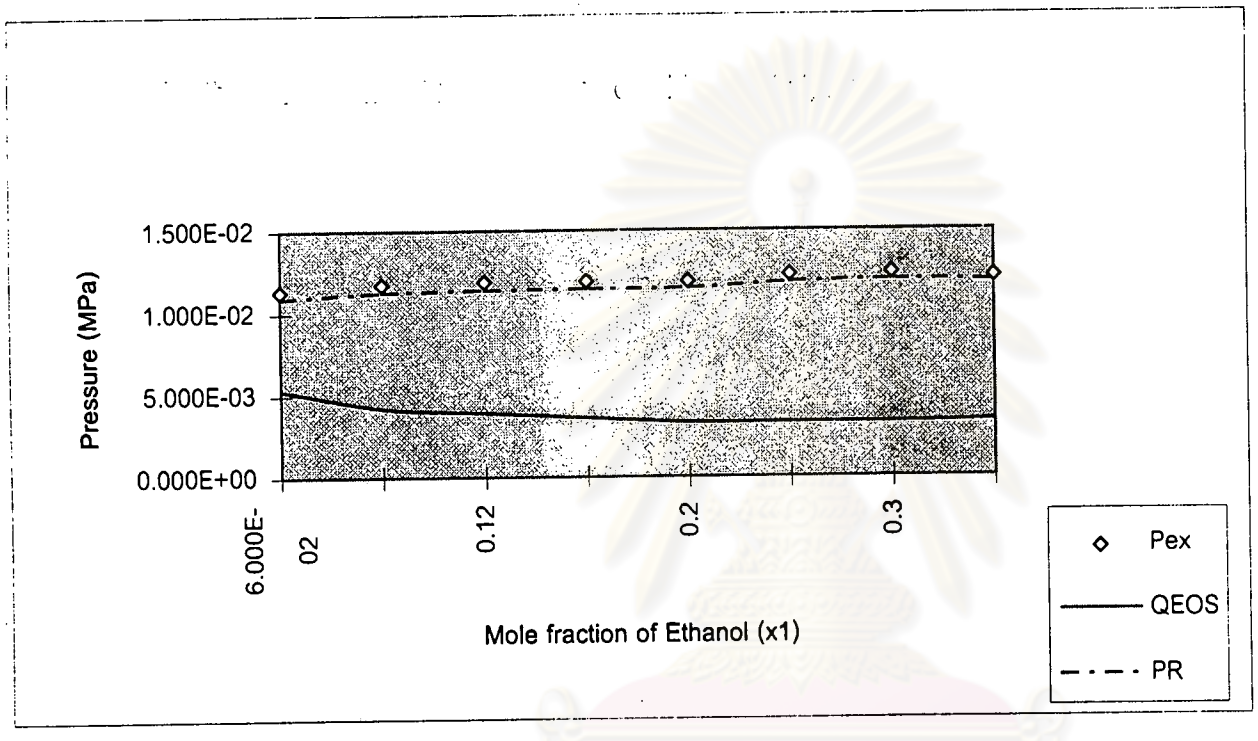


Figure 5.36 Saturation pressure of Ethanol & Heptane at 298.15 K

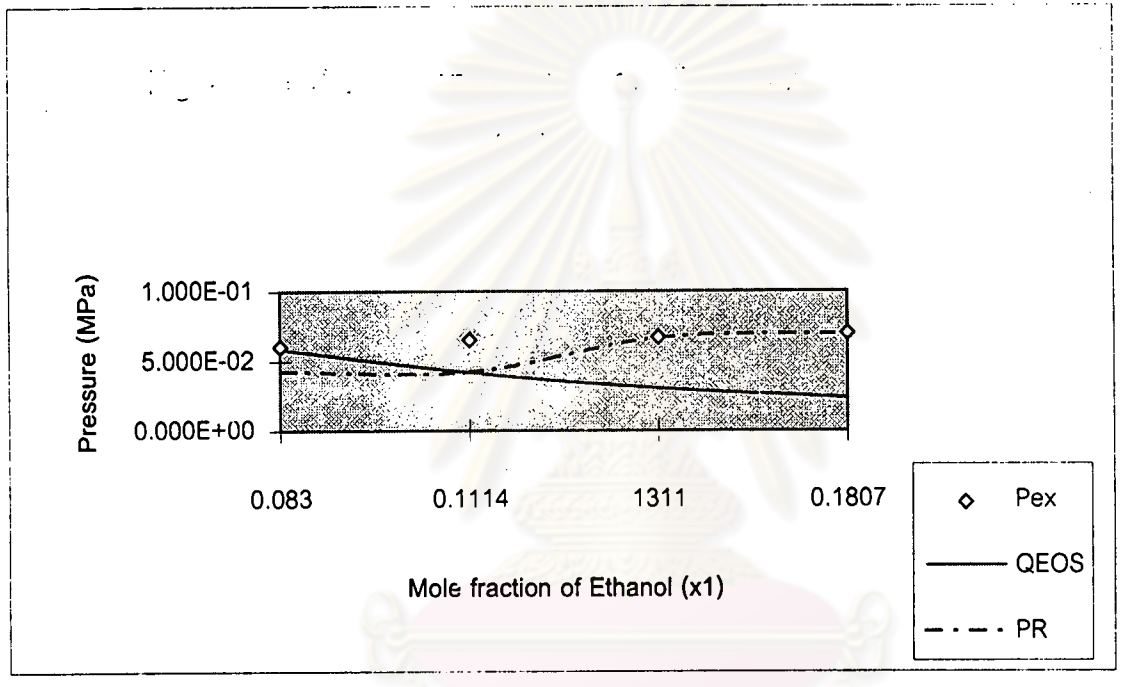


Figure 5.37 Saturation pressure of Ethanol & n - Octane at 343.15 K

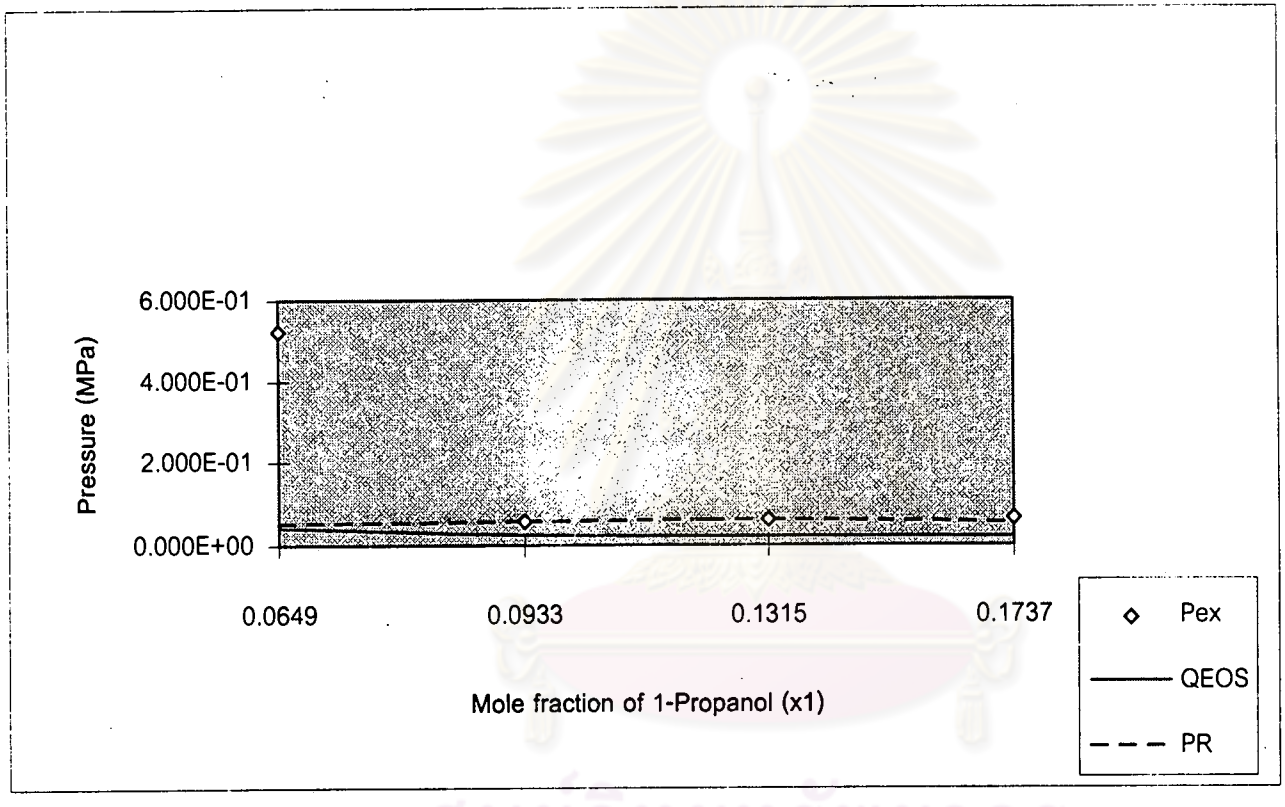


Figure 5.38 Saturation pressure of 1-Propanol & n-Octane at 385.15 K

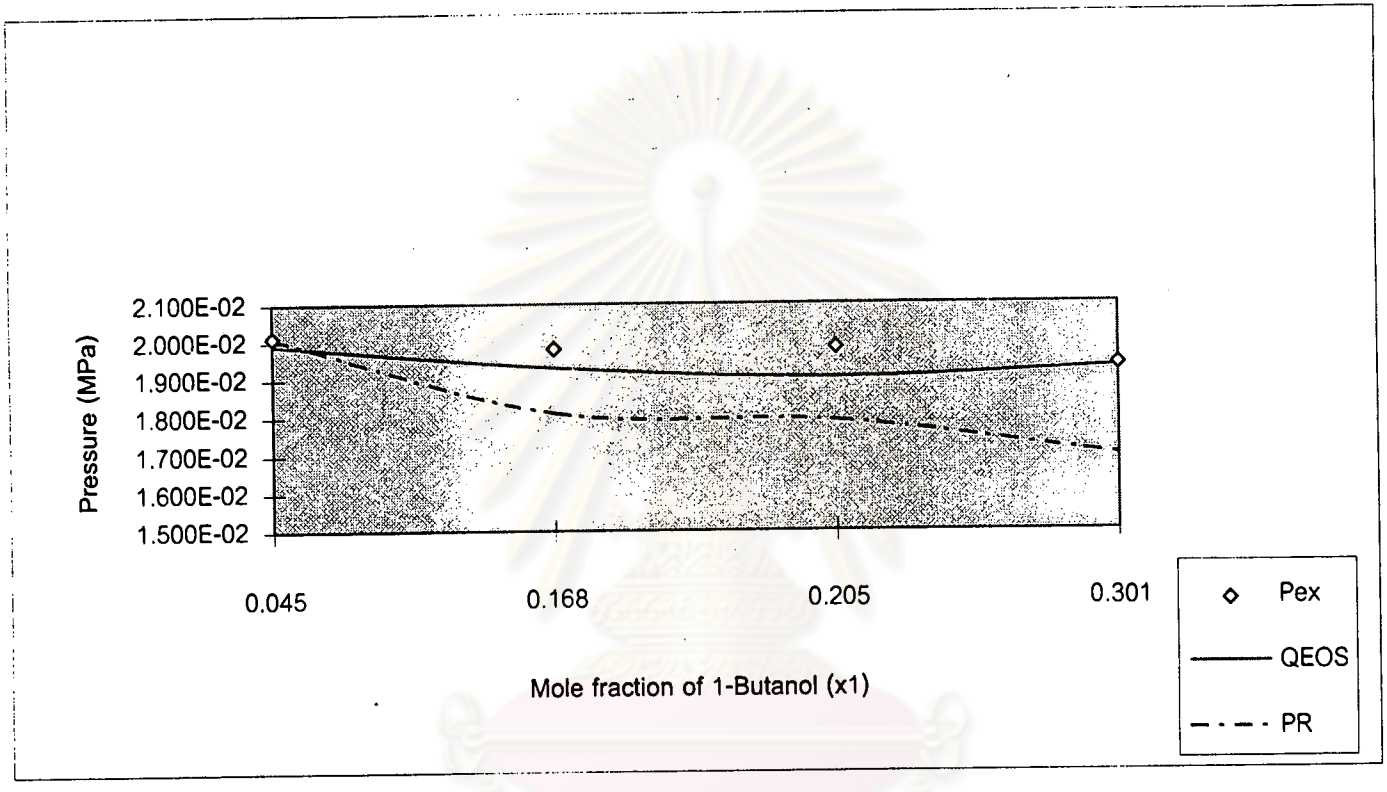


Figure 5.39 Saturation pressure of 1- Butanol & Hexane at 298.15 K

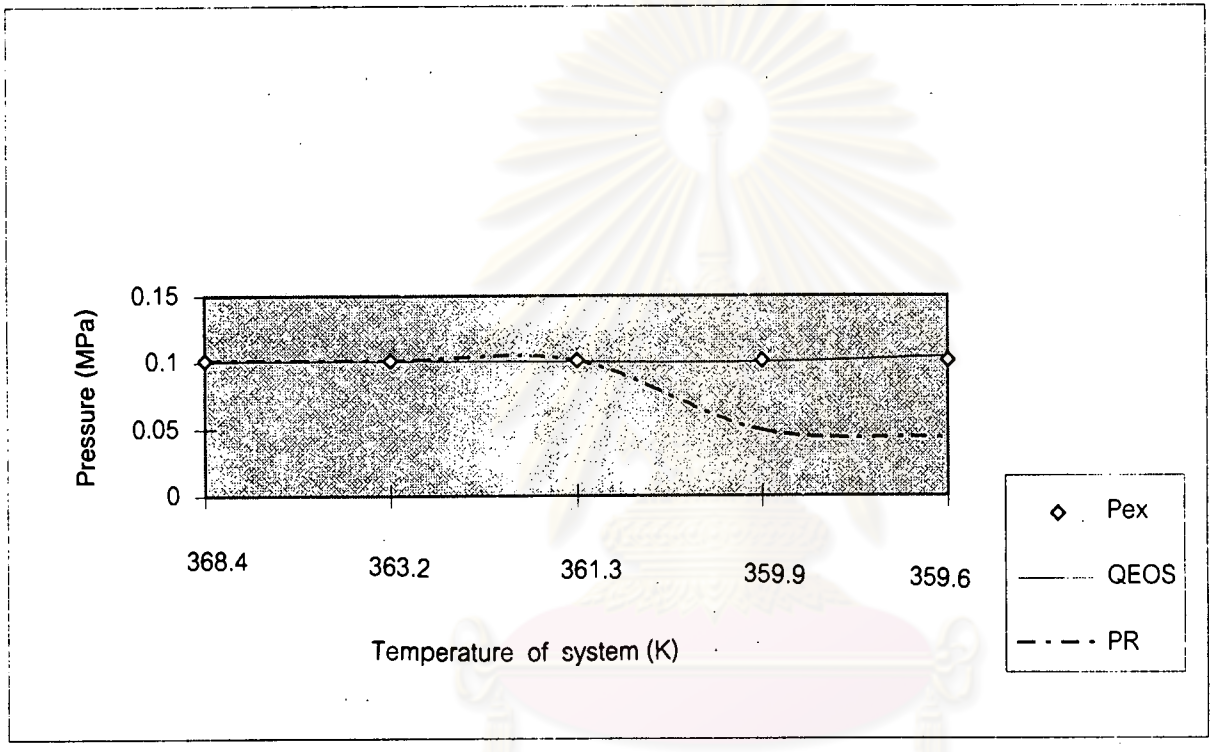


Figure 5.40 Saturation pressure of Tert- butyl alcohol & Chlorobenzene at 0.1013 MPa

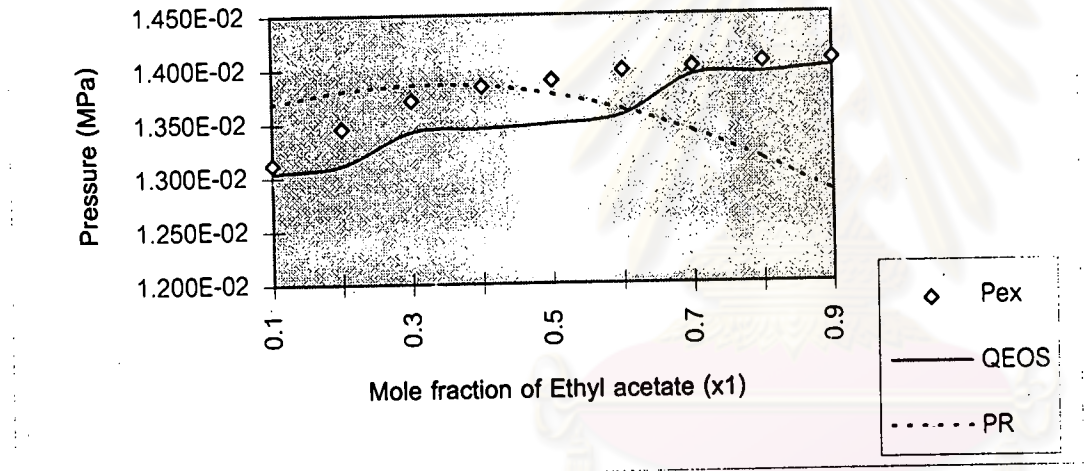


Figure 5.41 Saturation pressure of Ethyl acetate & 1- Chlorobutane at 298.15 K

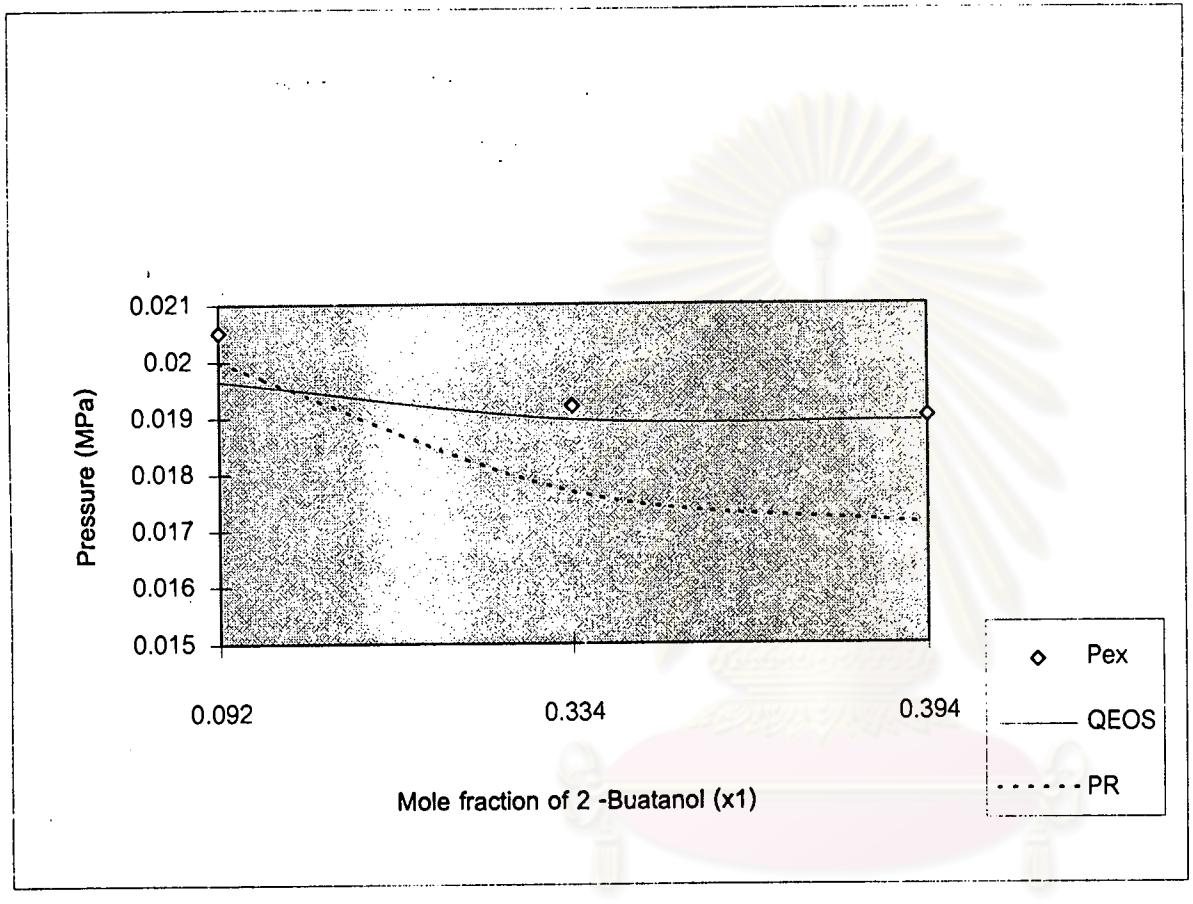
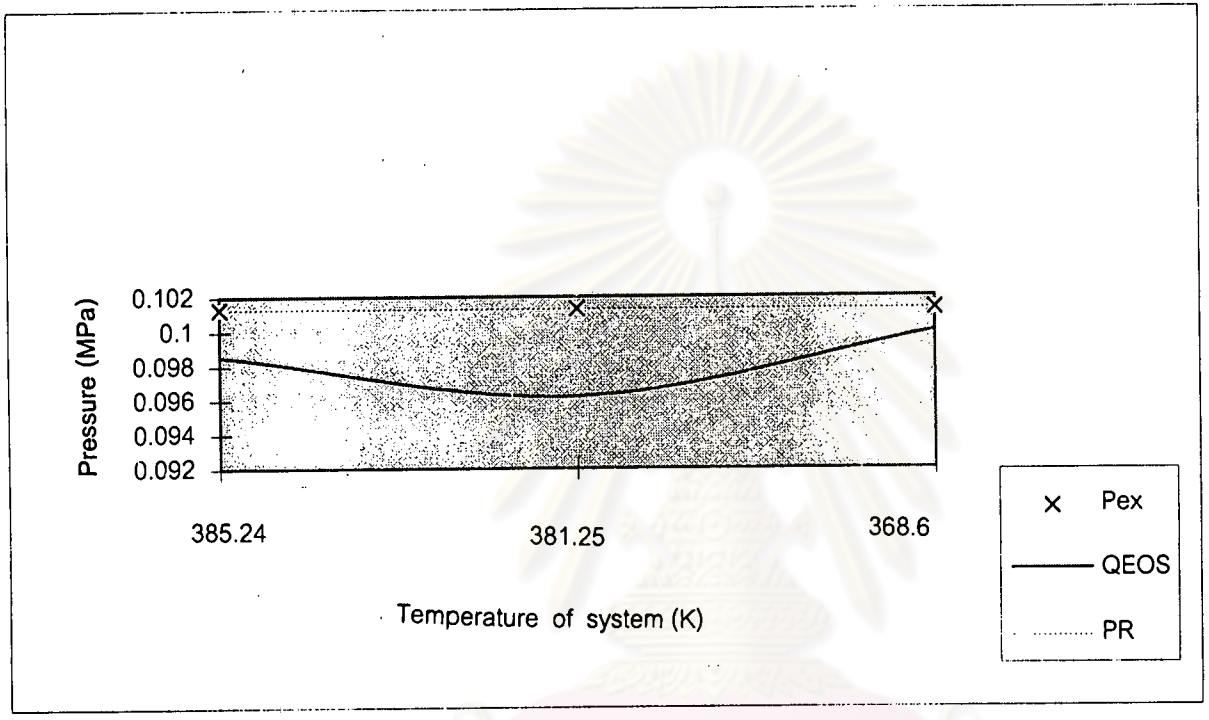


Figure 5.42 Saturation pressure of 2- Butanol & n-Hexane at 298 K



5.43 Saturation pressure of 1-Butanol& 2 - Chlorobutane at 0.1013MPa

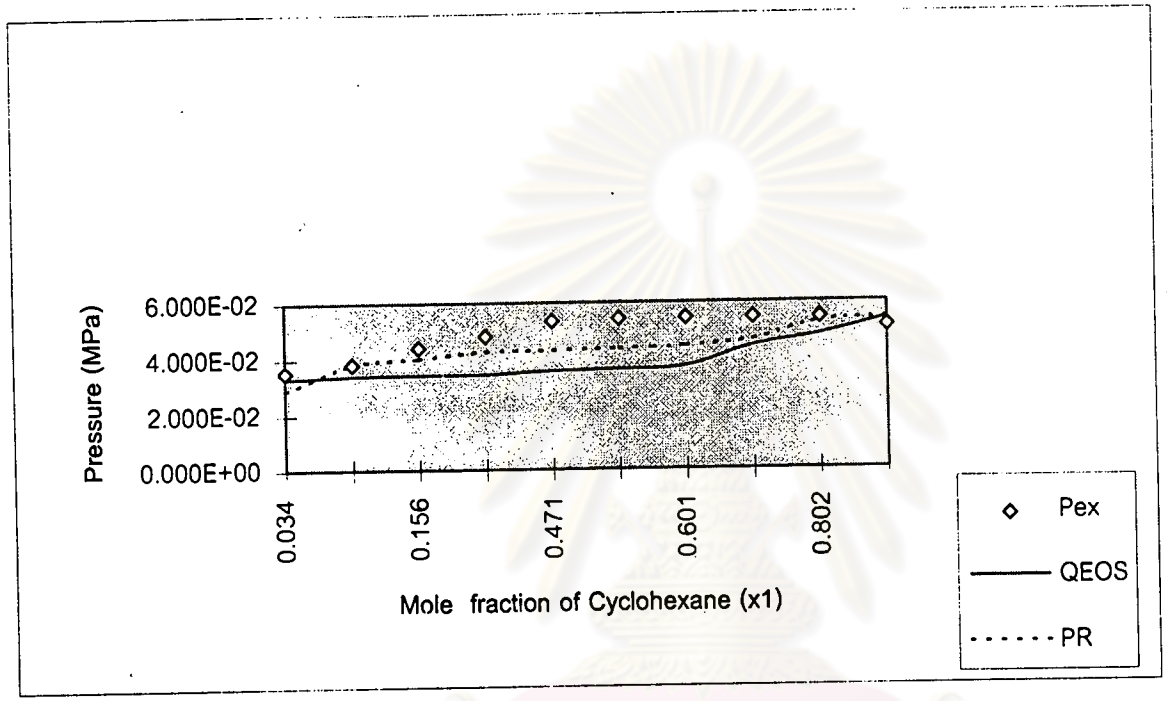


Figure 5.44 Saturation pressure of Tert - butyl alcohol & Cyclohexane at 328.20 K

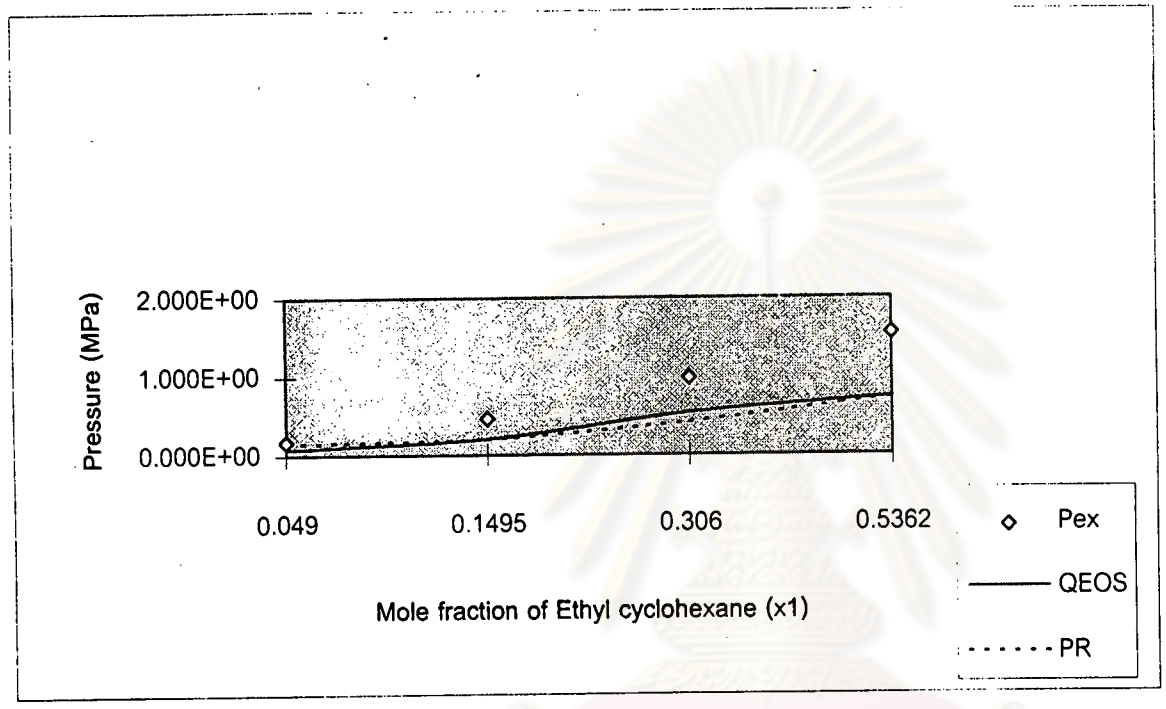


Figure 5.45 Saturation pressure of Hydrogen sulfide & Ethyl cyclohexane at 310.9 K

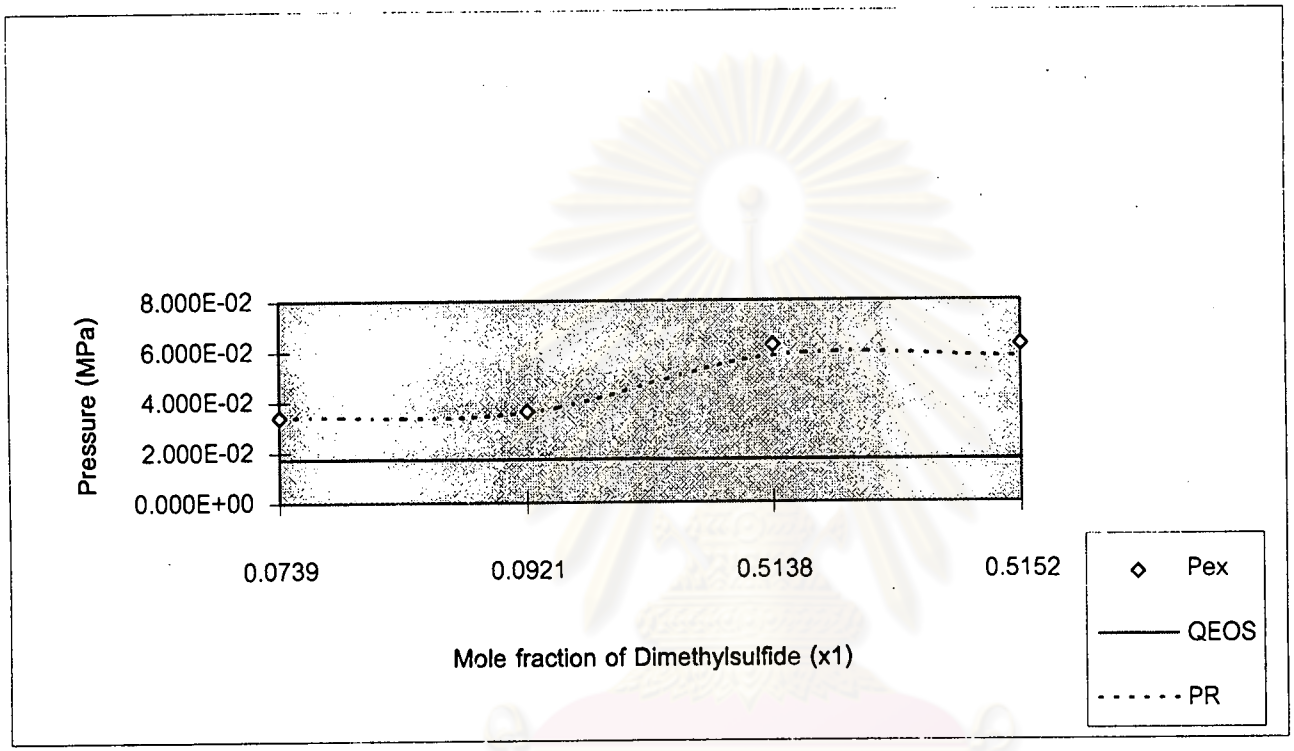


Figure 5.46 Saturation pressure of Methanol & Dimethyl sulfide at 297.84 K

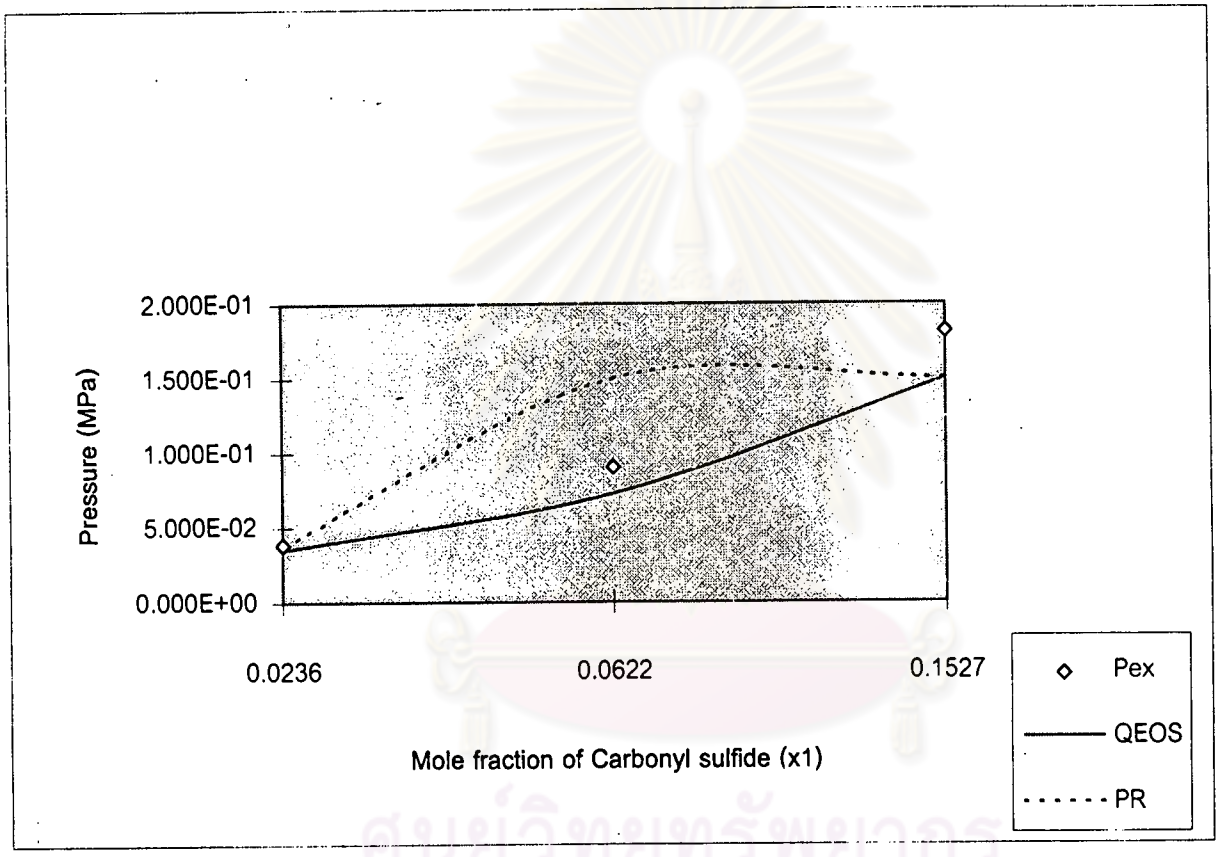


Figure 5.47 Saturation pressure of Methanol & Carbonyl; sulfide at 253.20 K

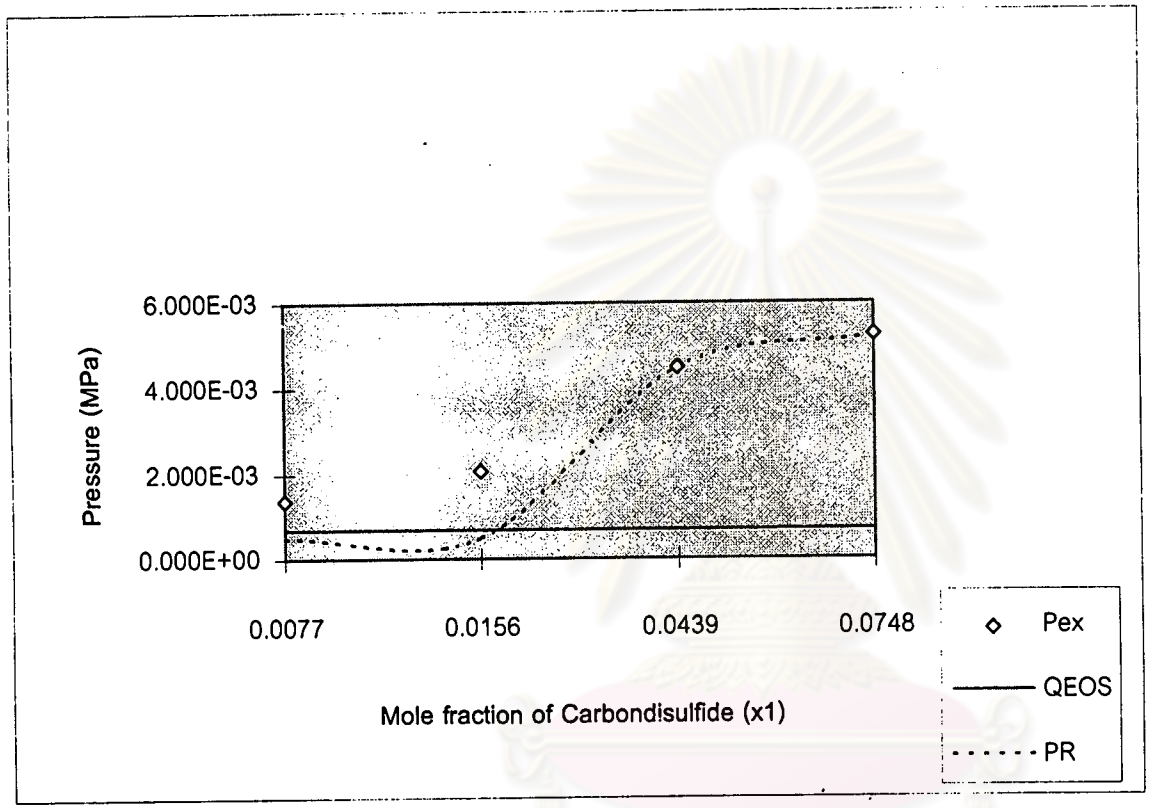


Figure 5.48 Saturation pressure of Methanol & Carbodisulfide 253.2 K

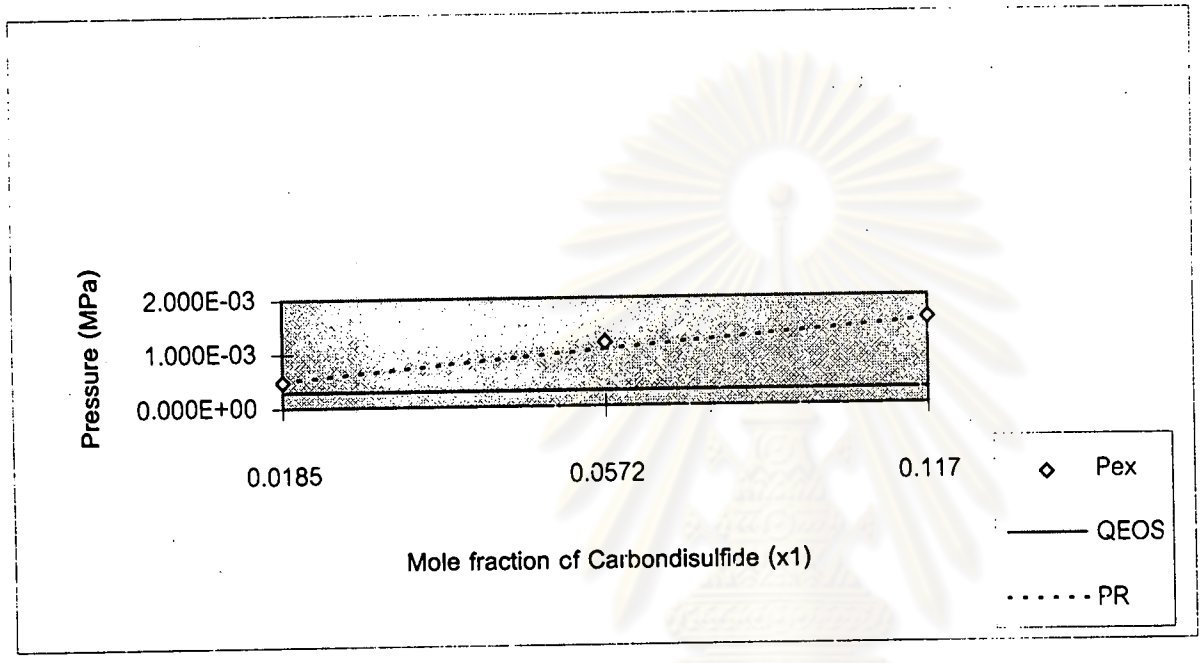


Figure 5.49 Saturation pressure of Methanol & Carbodisulfide at 233.2 K

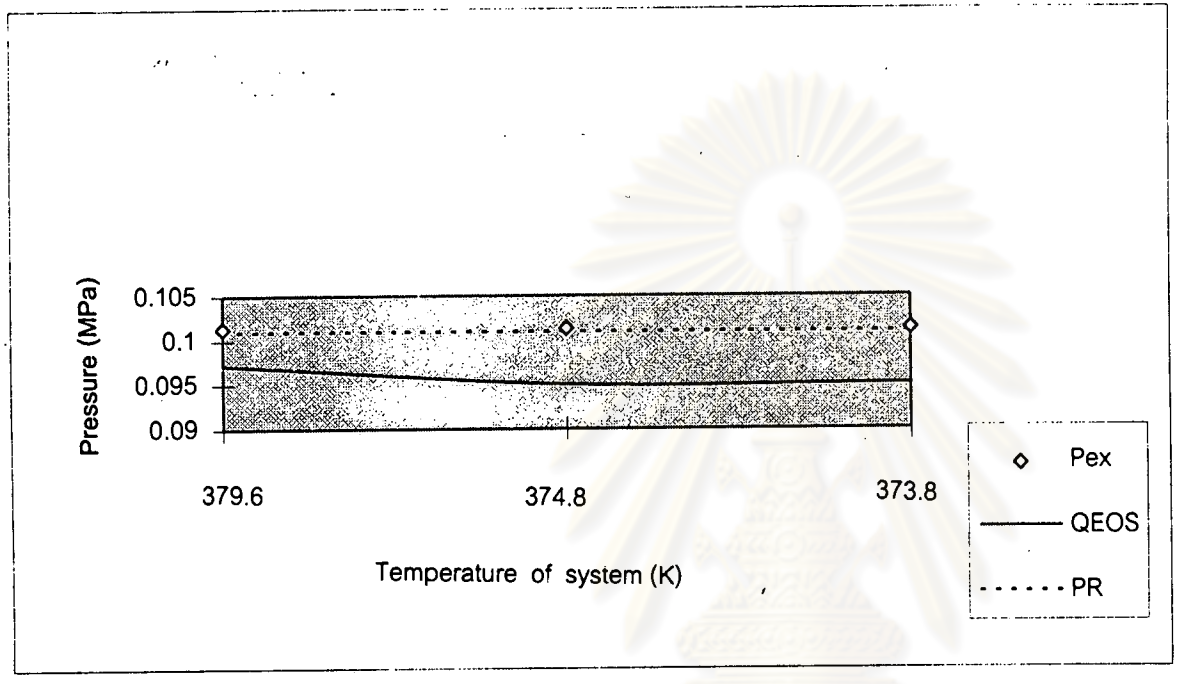


Figure 5.50 Saturation pressure of Methyl acetate & Toluene at 0.1013 MPa

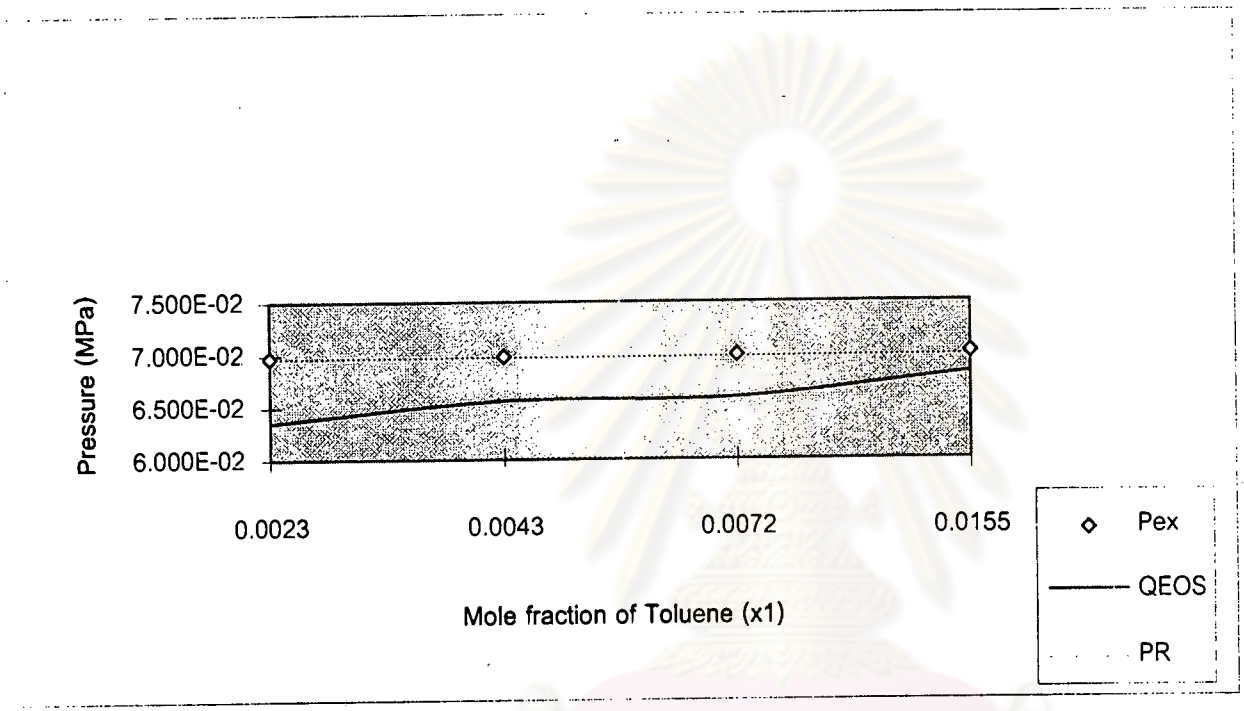


Figure 5.51 Saturation pressure of Acetonitrile &Toluene at 343.15 K

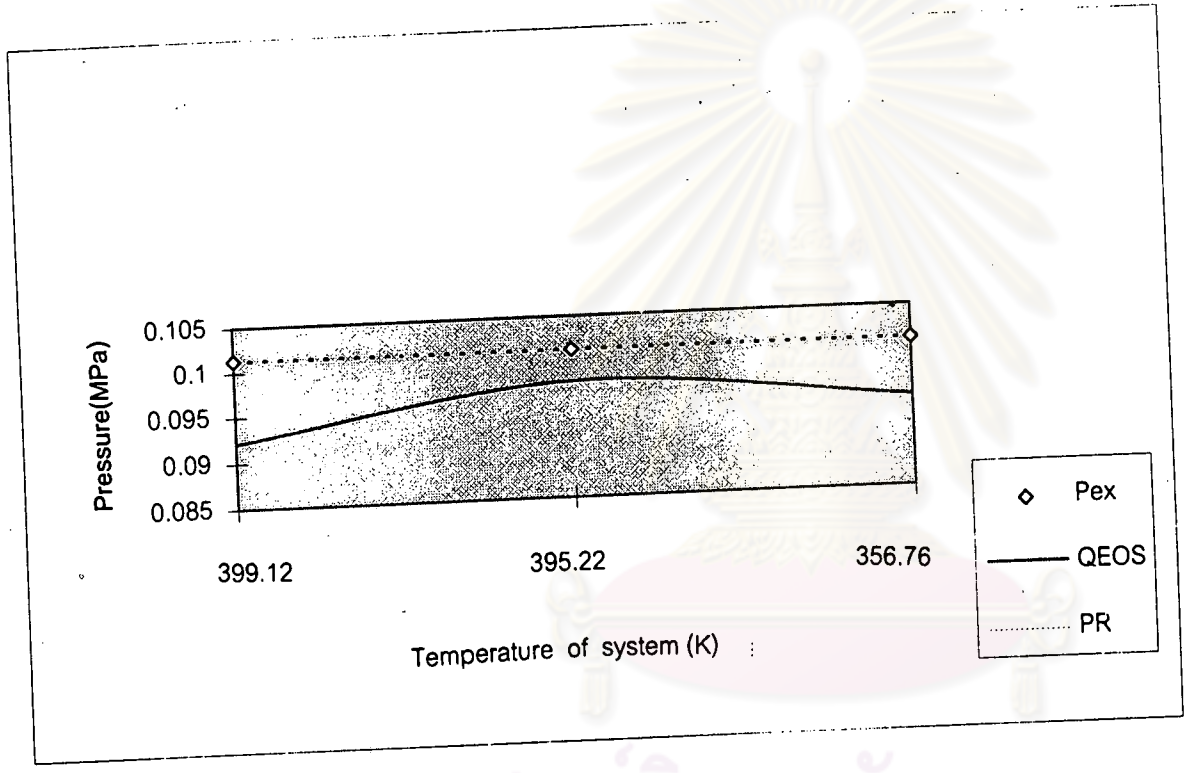


Figure 5.52 Saturation pressure of Methyl Ethyl Ketone & p-Xylene at 0.1013 MPa

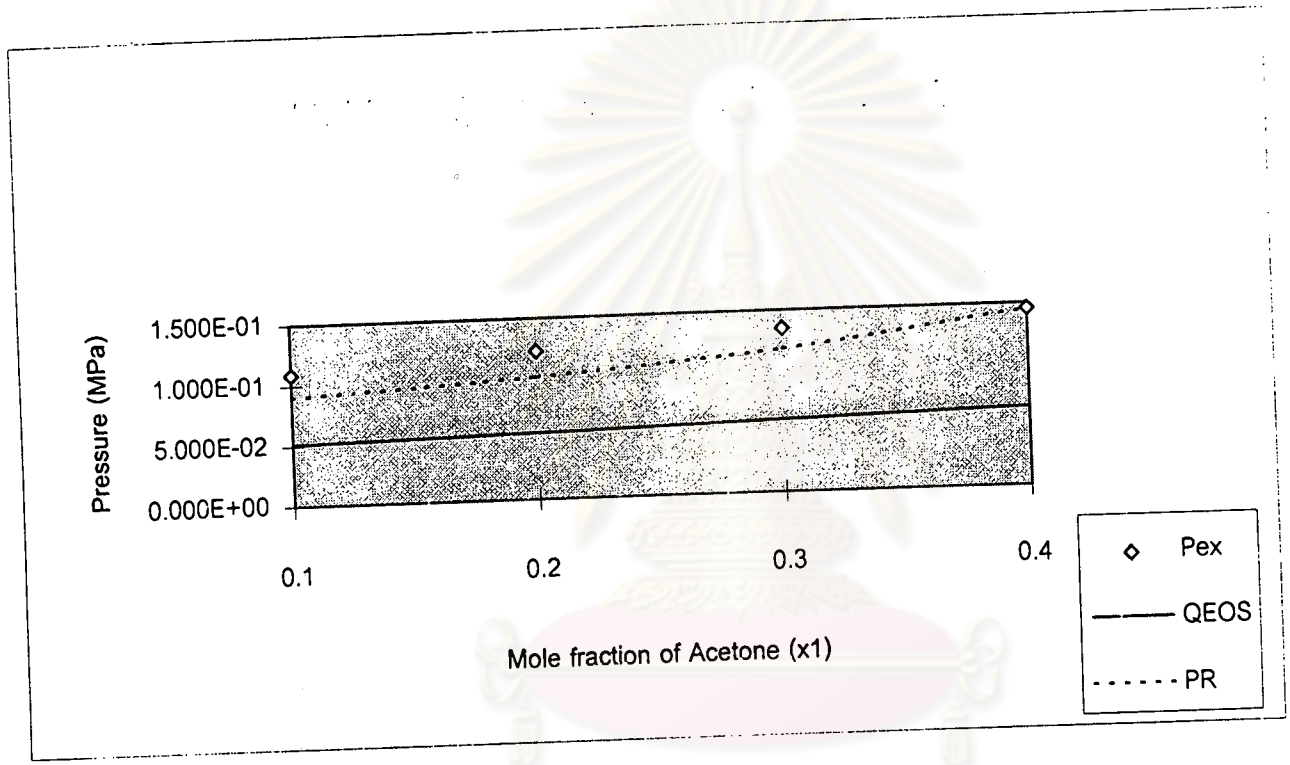


Figure 5.53 Saturation pressure of Acetone &1- Chlorobutane T 348.16 K

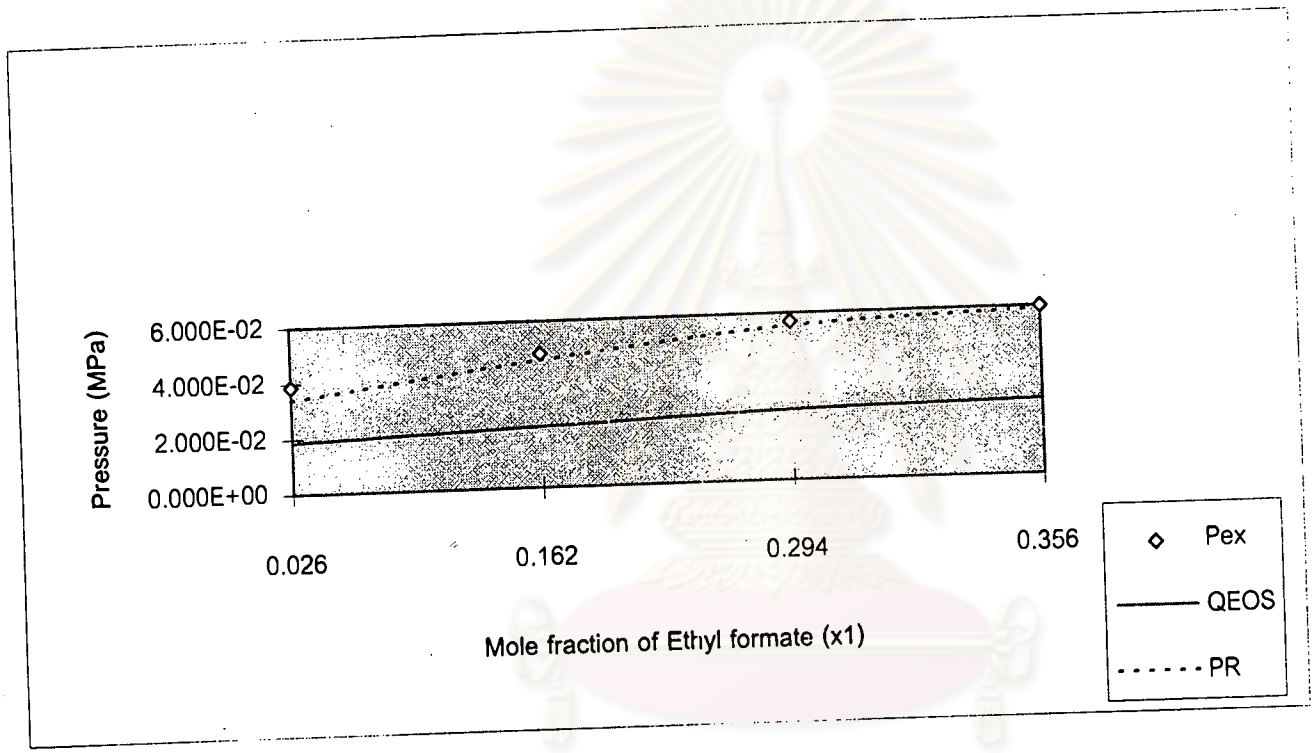


Figure 5.54 Saturation pressure of Ethyl formate & Benzene at 323.15 K

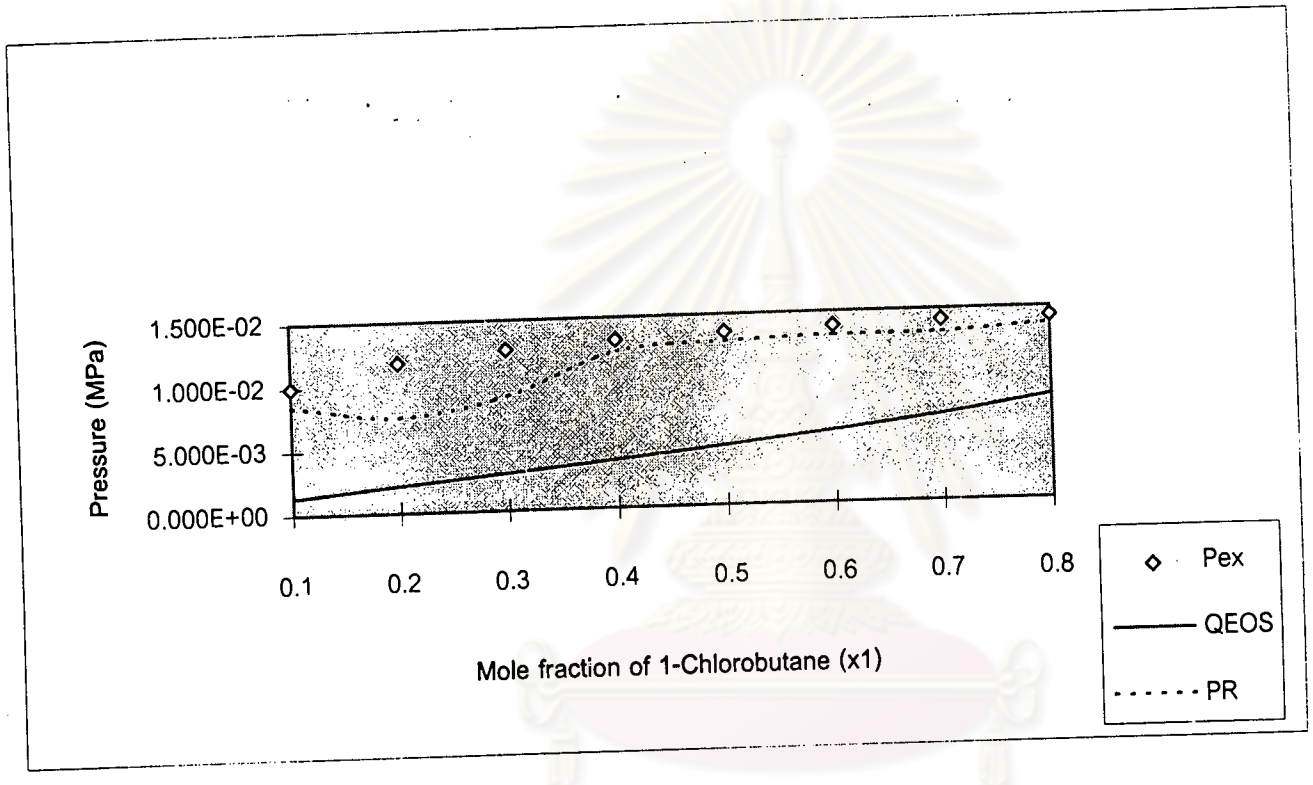


Figure 5.55 Saturation pressure of Nitromethane & 1-Chlorobutane at 298.18K

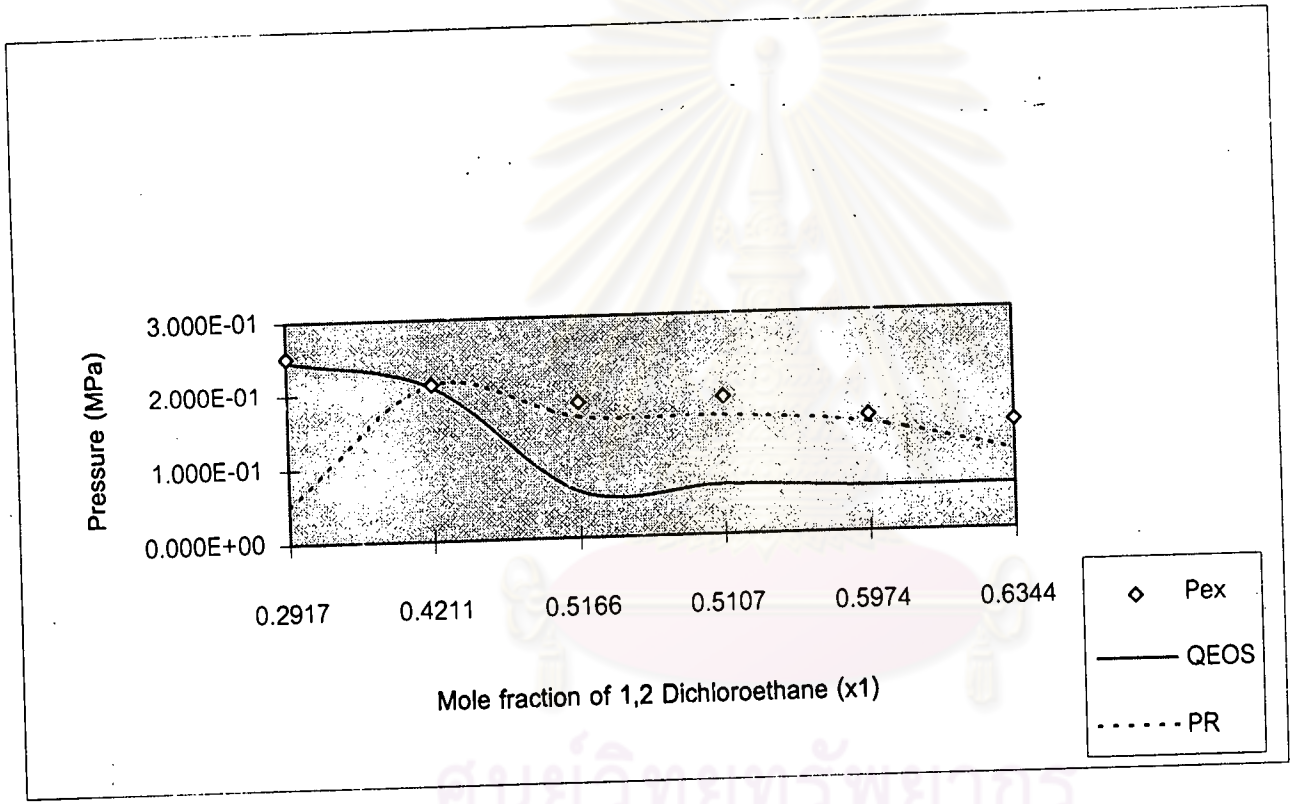


Figure 5.56 Saturation pressure of 1,2 Dichloroethane & Vinyl chloride at 293 K

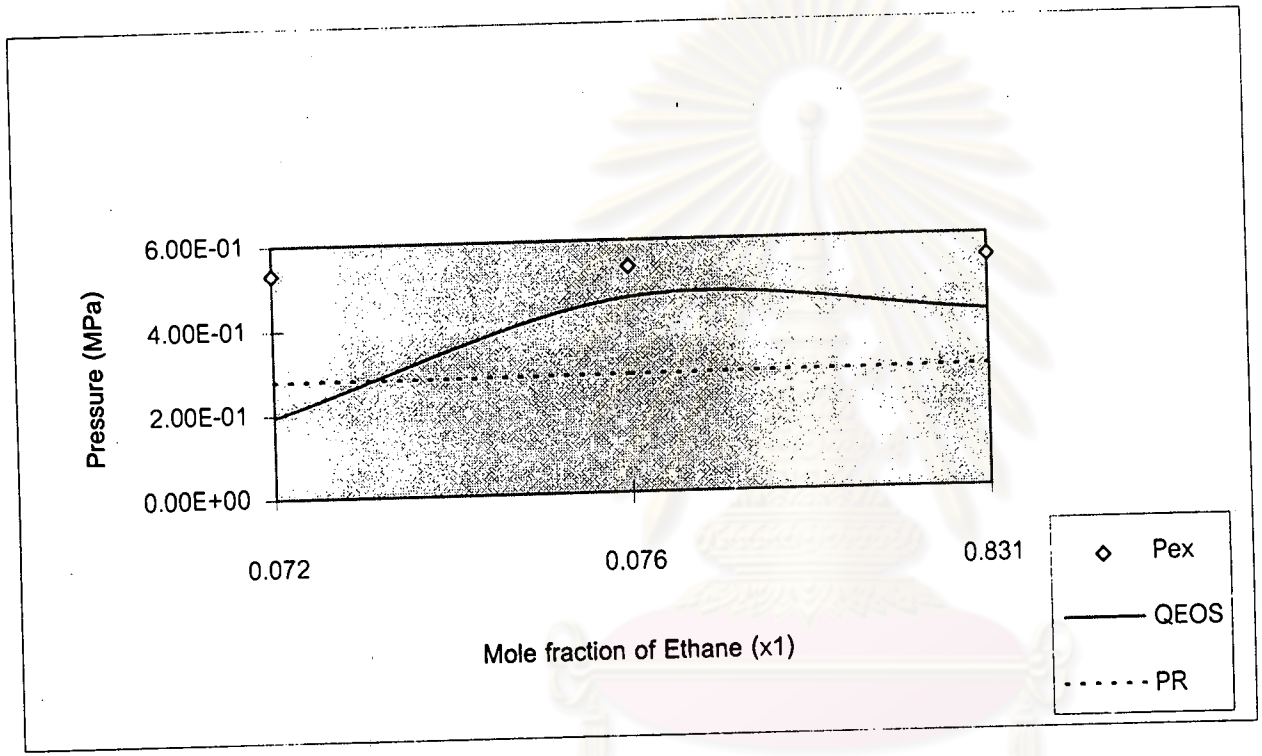


Figure 5.57 Saturation pressure of Ethane & Methane at 270 K

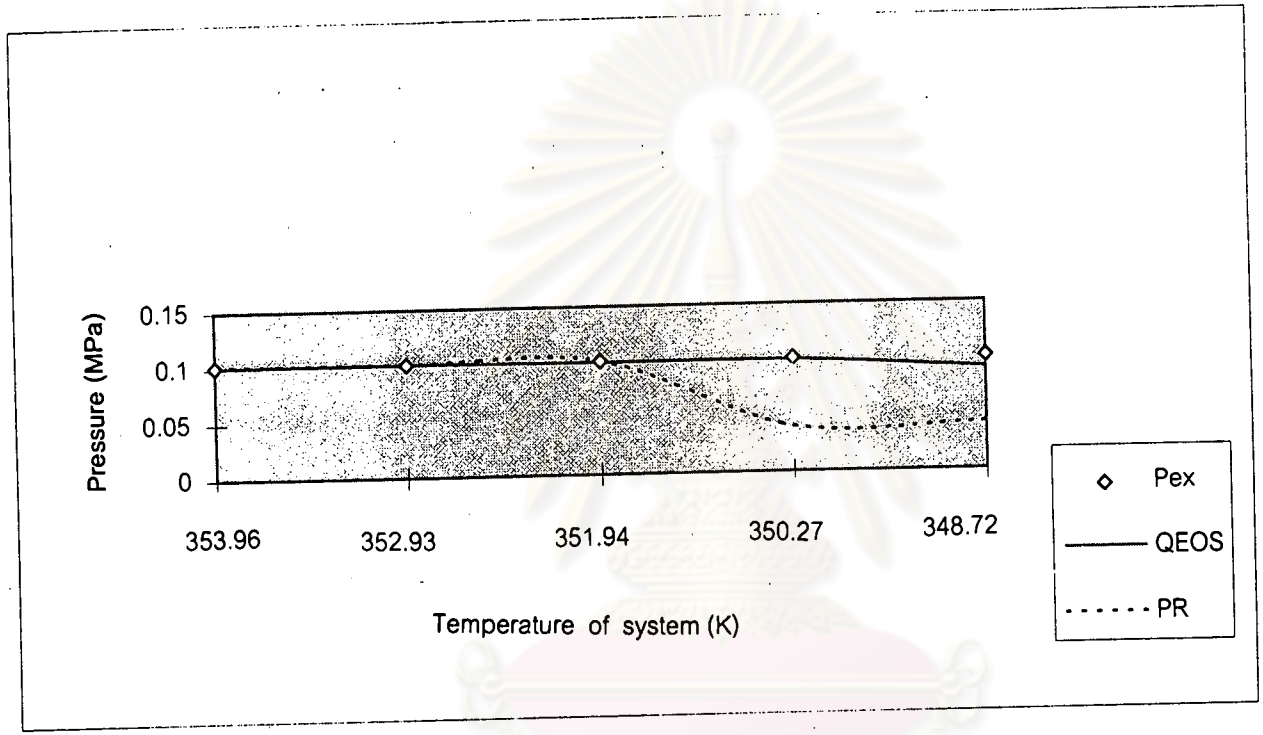


Figure 5.58 Saturation pressure of n- Hexane & n-Heptane at 0.1013 MPa

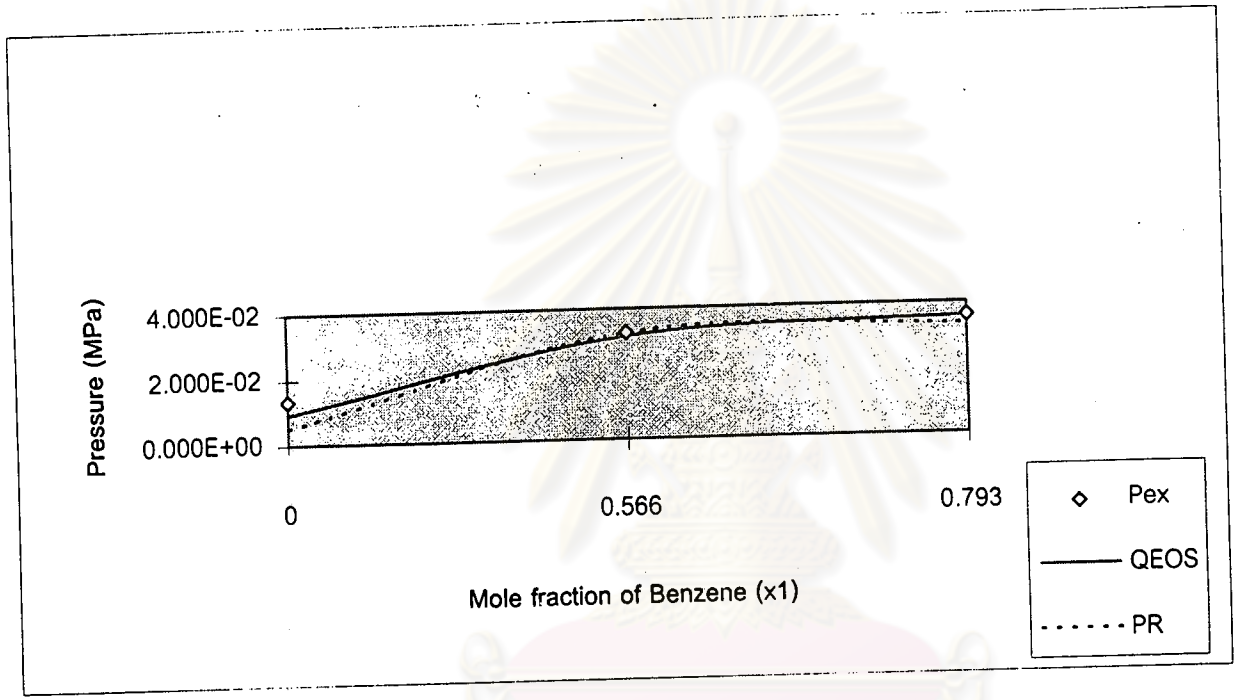


Figure 5.59 Saturation pressure of Benzene & Toluene at 325.15 K

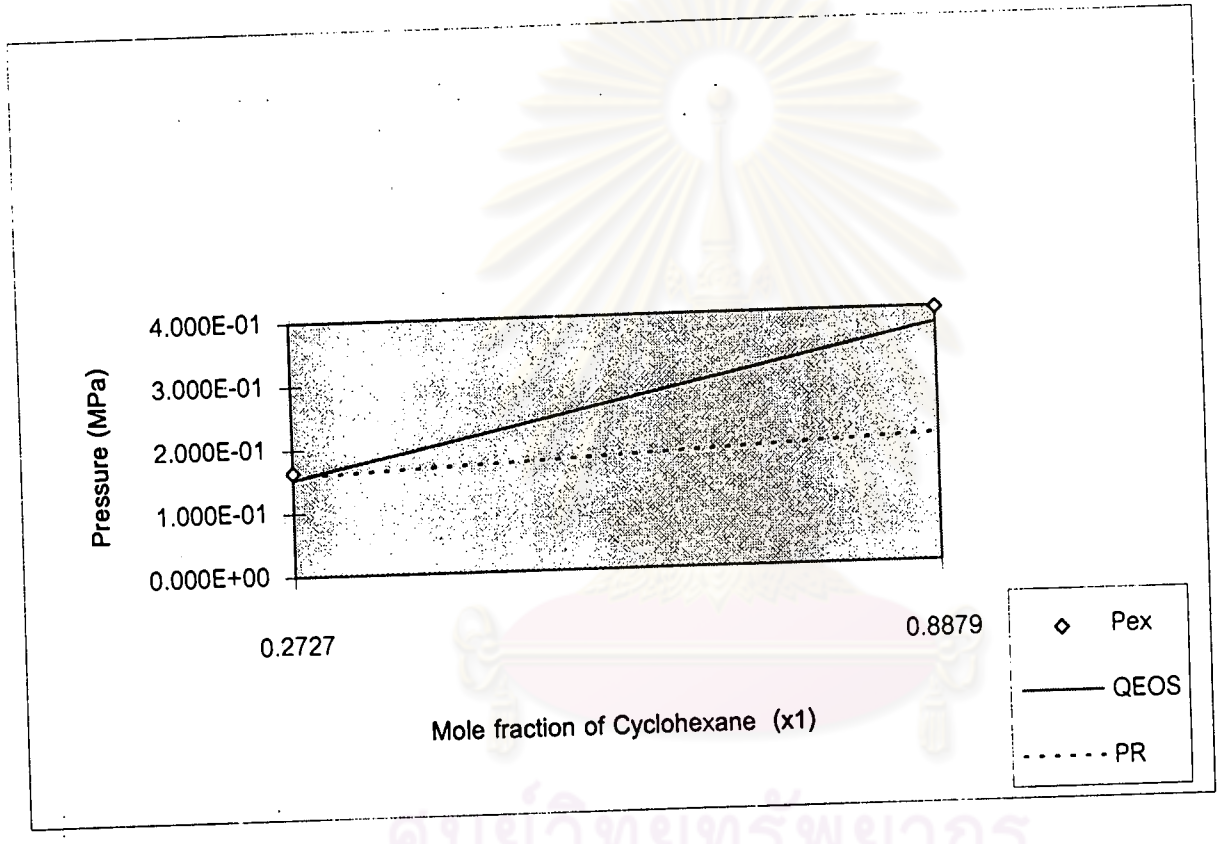


Figure 5.60 Saturation pressure of Chlorohexane & Napthalene at 413.15 K

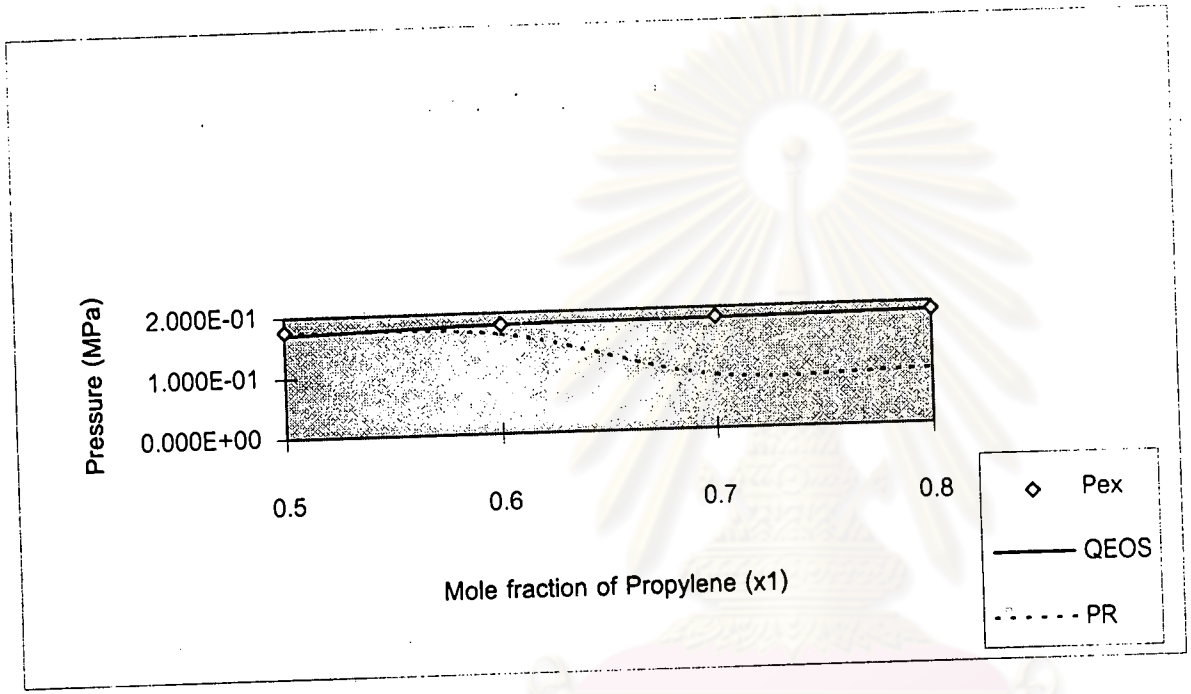


Figure 5.61 Saturation pressure of Propylene& Propane at 240K

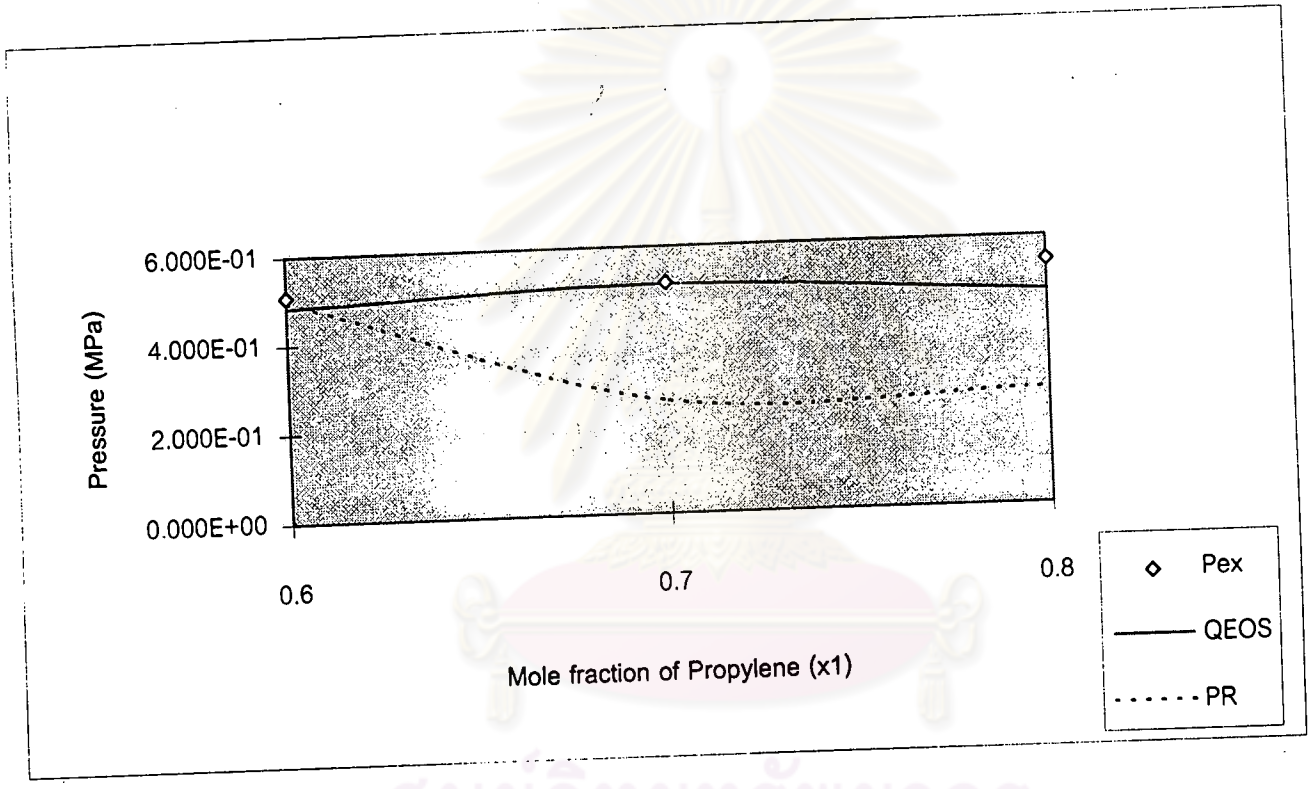


Figure 5.62 Saturation pressure of Propylene & Propane at 270 K

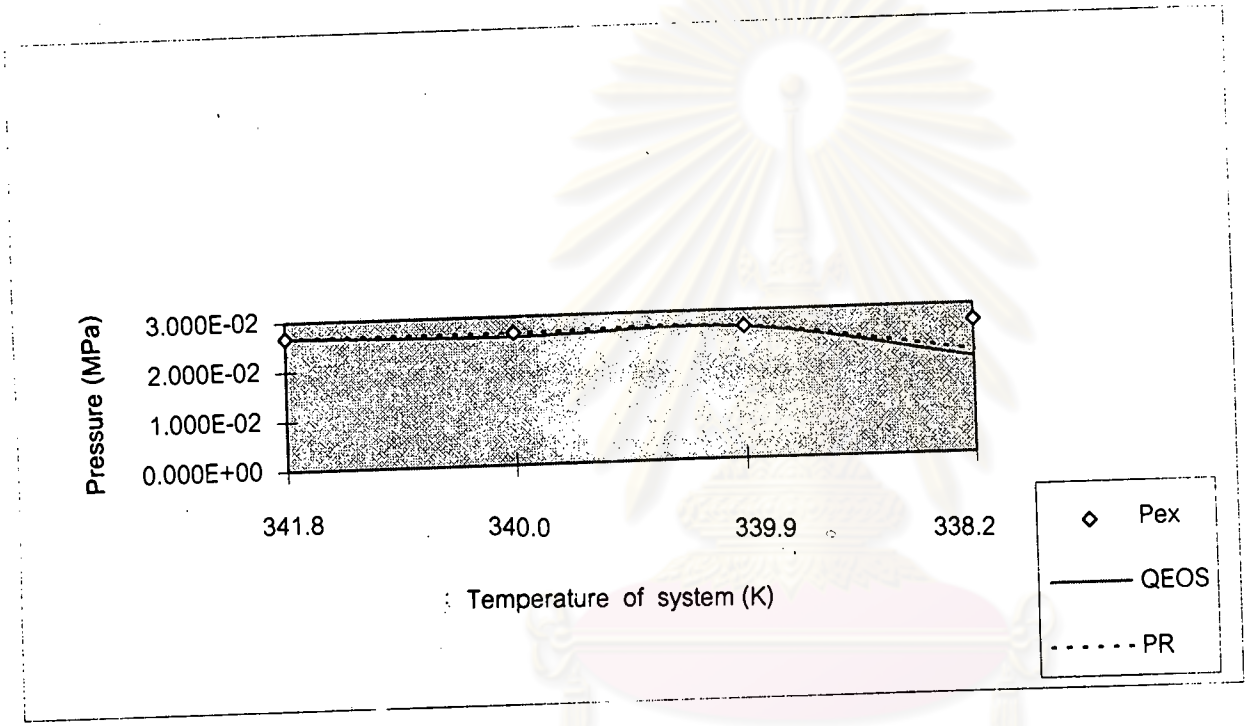


Figure 5.63 Saturation pressure of n- Heptane& Toluene at 0.0266 MPa

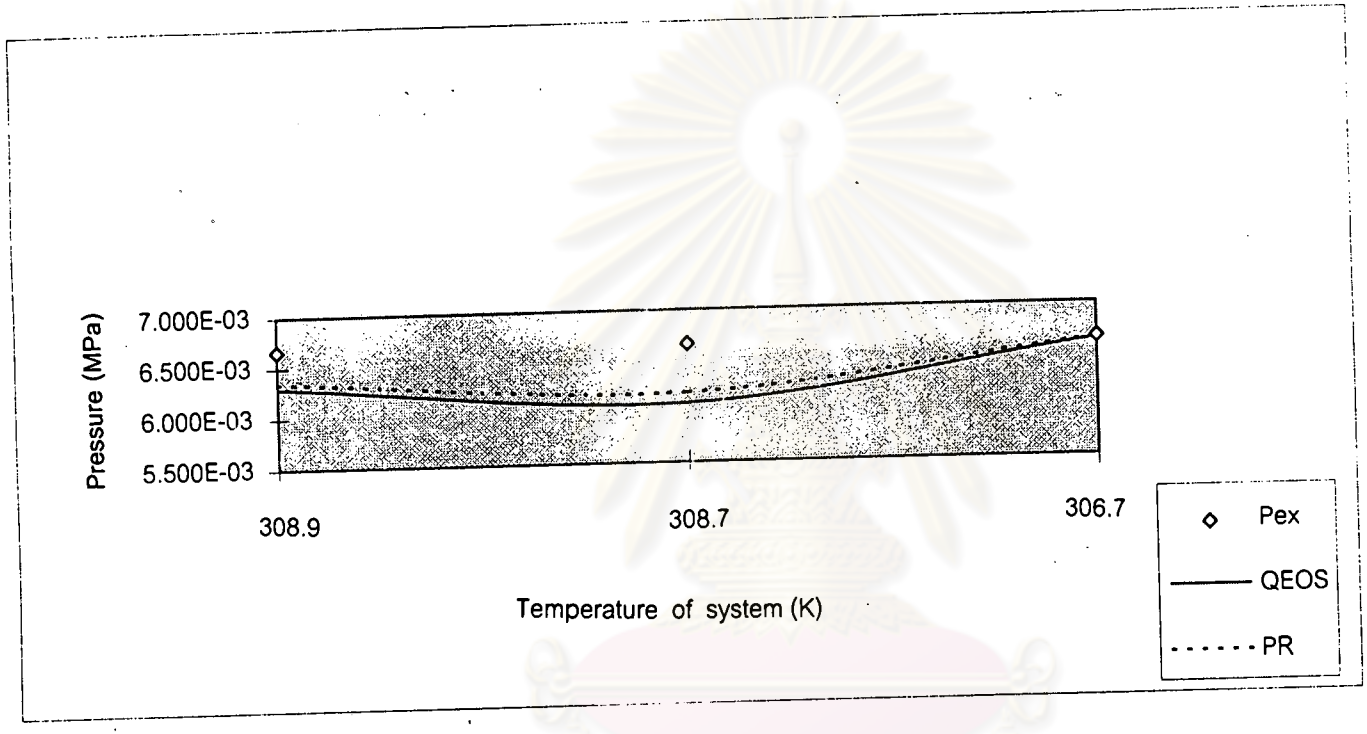


Figure 5.64 Saturation pressure of n- Heptane & Toluene at 0.0066 MPa