

APPENDIX A

Table A.1 Physico-chemical properties of amines

Properties	DEEA	PZ	AEEA	EDA	HMDA	DMAPA
Boiling point (°C)	161	146	238-240	118	204-205	133
Color	Pale yellow	White	Colorless	Colorless	Colorless	Colorless
Density (g/ml) at 25°C	0.884	1.1	1.03	0.899	0.84	0.872
Melting point (°C)	-70	109-112	-28	8.5	42-45	-60
Molecular formula	C ₆ H ₁₅ NO	C ₄ H ₁₀ N ₂	C ₄ H ₁₂ N ₂ O	C ₂ H ₈ N ₂	C ₆ H ₁₆ N ₂	C ₅ H ₁₄ N ₂
Molecular weight (g/mol)	117.19	86.14	104.15	60.1	116.21	102.18
Odor	Amine-like	Odorless	Odorless	Amine-like	Amine-like	Amine-like
pH at 20°C in H ₂ O	11.5 (100g/L)	11-12.5 (0.1M)	11.8 (111g/L)	12.2, 100g/L	12.4 (100g/L)	12.7(100g/L)
Physical state	Liquid	Solid	Liquid	Liquid	Solid	Liquid
Vapour pressure (mmHg) at 20°C	1	0.8	<0.01	10	0.195	5

Sources: www.chemicalbook.com, www.chemspider.com

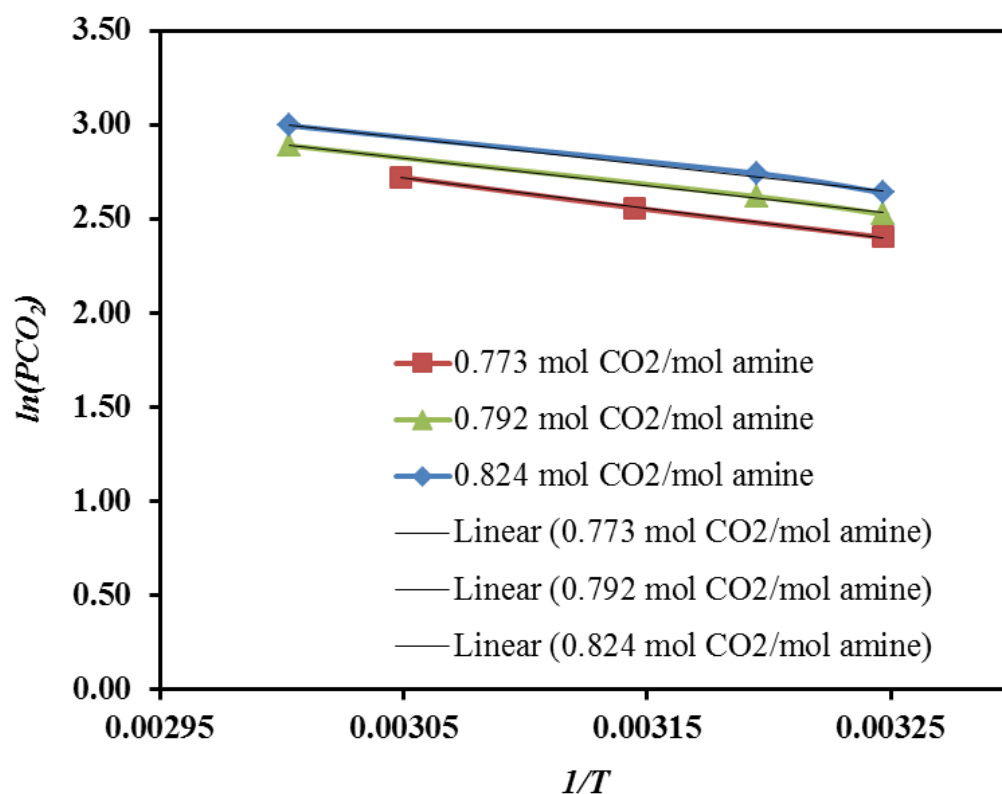


Figure A.1 Plot between $\ln(p_{CO_2})$ versus $1/T$ at different equilibrium solubility of CO_2 in DEEA+AEEA solution

Table A.2 Estimated data of absorption heat of CO_2 in DEEA+AEEA solution at various loading

CO ₂ loading	CO ₂ absorption heat (kJ/mol)
0.773	74.15
0.792	71.70
0.824	71.47
Average absorption heat (kJ/mol)	72.44