

Appendix - 3

*Experimental Data
for Air Electrolyte*

APPENDIX-3

Table A3.1 Experimental data for air-Electrolyte

Sl. No.	Bed Height m	Air Flow rate $Q_g \times 10^4$ m^3/s	% Gas holdup
1	2	3	4
System: Air-0.4(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.22 m			
1	1.22	0	0
2	1.23	0.2234	0.813008
3	1.24	0.4543	1.612903
4	1.25	0.6065	2.4
5	1.26	0.8091	3.174603
6	1.265	0.946	3.557312
7	1.27	1.0627	3.937008
8	1.28	1.3536	4.6875
9	1.29	1.6228	5.426357
10	1.295	1.8085	5.791506
11	1.30	2.0627	6.153846
12	1.31	2.3088	6.870229
13	1.32	2.6846	7.575758
14	1.33	3.0763	8.270677
15	1.34	3.40214	8.955224
System: Air-0.4(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.17 m			
16	1.17	0	0
17	1.174	0.0508	0.340716
18	1.198	0.5399	2.337229
19	1.22	1.0192	4.098361
20	1.23	1.3393	4.878049
21	1.25	1.8948	6.4
22	1.255	2.1132	6.772908
23	1.265	2.3737	7.509881
24	1.27	2.5565	7.874016
25	1.275	2.7219	8.235294
26	1.29	3.2304	9.302326
27	1.30	3.6569	10
28	1.305	3.8793	10.34483

Appendix-3 Experimental data for electrolyte

1	2	3	4
29	1.309	4.0816	10.61879
30	1.315	4.3249	11.02662
System: Air-0.4(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.12 m			
31	1.12	0	0
32	1.124	0.189	0.355872
33	1.145	0.6058	2.183406
34	1.16	0.9878	3.448276
35	1.175	1.3674	4.680851
36	1.19	1.798	5.882353
37	1.205	2.1892	7.053942
38	1.22	2.5035	8.196721
39	1.228	2.8002	8.794788
40	1.235	3.0738	9.311741
41	1.24	3.2859	9.677419
42	1.25	3.5957	10.4
43	1.255	3.886	10.75697
44	1.26	4.2194	11.11111
45	1.265	4.4444	11.46245
System: Air-0.2(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.22 m			
46	1.22	0	0
47	1.224	0.0606	0.326797
48	1.24	0.4352	1.612903
49	1.26	0.8768	3.174603
50	1.27	1.1552	3.937008
51	1.29	1.8544	5.426357
52	1.30	2.2188	6.153846
53	1.305	2.3622	6.51341
54	1.31	2.5266	6.870229
55	1.325	3.1718	7.924528
56	2	3	4
57	1.33	3.4149	8.270677
58	1.335	3.5914	8.614232
59	1.34	3.8478	8.955224
60	1.345	4.0993	9.29368
61	1.355	4.6488	9.9631
System: Air-0.2(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.17 m			

Appendix-3 Experimental data for electrolyte

1	2	3	4
62	1.17	0	0
63	1.173	0.0623	0.255754
64	1.175	0.1538	0.425532
65	1.205	0.8804	2.904564
66	1.225	1.3001	4.489796
67	1.23	1.4837	4.878049
68	1.24	1.7969	5.645161
69	1.25	2.2321	6.4
70	1.26	2.5087	7.142857
71	1.27	2.828	7.874016
72	1.28	3.165	8.59375
73	1.29	3.5232	9.302326
74	1.30	3.8995	10
75	1.305	4.2483	10.34483
76	1.31	4.5512	10.68702
System: Air-0.2(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.12 m			
77	1.12	0	0
78	1.128	0.1851	0.70922
79	1.142	0.5349	1.926445
80	1.155	0.9228	3.030303
81	1.165	1.1838	3.862661
82	1.176	1.4851	4.761905
83	1.182	1.7159	5.245347
84	1.194	2.1053	6.197655
85	1.205	2.4161	7.053942
86	1.215	2.7544	7.81893
87	1.221	3.1212	8.271908
88	1.228	3.4315	8.794788
89	1.232	3.6735	9.090909
90	1.24	3.9779	9.677419
91	1.248	4.287	10.25641
System: Air-0.1(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.22 m			
92	1.22	0	0
93	1.225	0.0976	0.408163
94	1.245	0.5501	2.008032
95	1.26	1.0502	3.174603

Appendix-3 Experimental data for electrolyte

1	2	3	4
96	1.275	1.4623	4.313725
97	1.285	1.9309	5.058366
98	1.295	2.2883	5.791506
99	1.30	2.5955	6.153846
100	1.31	2.9523	6.870229
101	1.315	3.2544	7.224335
102	1.325	3.6213	7.924528
103	1.33	3.8313	8.270677
104	1.335	4.0272	8.614232
105	1.34	4.2747	8.955224
106	1.355	5.0111	9.8631
System: Air-0.1(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.17 m			
107	1.17	0	
108	1.175	0.1563	0.425532
109	1.19	0.4926	1.680672
110	1.205	0.9886	2.904564
111	1.215	1.3289	3.703704
112	1.225	1.6806	4.489796
113	1.245	2.3301	6.024096
114	1.255	2.8173	6.772908
115	1.265	3.106	7.509881
116	1.27	3.359	7.874016
117	1.28	3.9744	8.59375
118	1.29	4.3381	9.302326
119	1.295	4.6662	9.65251
120	1.305	5.2145	10.34483
121	2	3	4
122	1.31	5.488	10.68702
System: Air-0.1(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.12 m			
123	1.12	0	0
124	1.123	0.0473	0.267142
125	1.13	0.4387	1.284956
126	1.15	0.9142	2.608696
127	1.165	1.3918	3.862661
128	1.175	1.5921	4.680851
129	1.185	1.9319	5.485232
130	1.195	2.3393	6.276151
131	1.20	2.4325	6.666667

Appendix-3 Experimental data for electrolyte

1	2	3	4
132	1.206	2.8497	7.131012
133	1.212	3.0019	7.590759
134	1.224	3.4504	8.496732
135	1.231	3.8384	9.017059
136	1.241	4.2206	9.750201
137	1.25	4.8075	10.4
System: Air-0.05(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.22 m			
138	1.22	0	0
139	1.225	0.1597	0.408163
140	1.24	0.5137	1.612903
141	1.27	1.4623	3.937008
142	1.275	1.7757	4.313725
143	1.29	2.4229	5.426357
144	1.30	2.8099	6.153846
145	1.305	3.2034	6.51341
146	1.31	3.4529	6.870229
147	1.32	3.9309	7.575758
148	1.33	4.3114	8.270677
149	1.34	4.704	8.955224
150	1.35	5.1165	9.62963
151	1.355	5.4811	9.9631
152	1.36	5.7822	10.29412
System: Air-0.05(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.17 m			
153	1.17	0	0
154	1.175	0.1616	0.425532
155	1.185	0.3733	1.265823
156	1.198	0.8539	2.337229
157	1.213	1.323	3.54493
158	1.224	1.7549	4.411765
159	1.235	2.0923	5.263158
160	1.241	2.4292	5.721193
161	1.248	2.7129	6.25
162	1.252	3.0095	6.549521
163	1.261	3.4221	7.216495
164	1.27	3.7293	7.874016
165	1.279	4.1162	8.522283
166	1.29	4.633	9.302326
167	1.295	4.9581	9.65251

Appendix-3 Experimental data for electrolyte

1	2	3	4
System: Air-0.05(M) NaCl solution Distributor hole diameter: 0.004 m Bed height without any aeration: 1.12 m			
168	1.12	0	0
169	1.125	0.0916	0.444444
170	1.15	0.8508	2.608696
171	1.165	1.4019	3.862661
172	1.18	1.9873	5.084746
173	1.195	2.4263	6.276151
174	1.20	2.685	6.666667
175	1.21	3.0955	7.438017
176	1.22	3.479	8.196721
177	1.23*	3.9974	8.943089
178	1.235	4.3735	9.311741
179	1.24	4.6802	9.677419
180	1.245	4.9313	10.04016
181	1.25	5.2478	10.4
182	1.255	5.6117	10.75697
System: Air-water Distributor hole diameter: 0.004 m Bed height without any aeration: 1.22 m			
183	1.22	0	0
184	1.23	0.1974	0.813008
185	1.245	0.7041	2.008032
186	1.26	1.2786	3.174603
187	1.27	1.6068	3.937008
188	1.28	2.1635	4.6875
189	1.29	2.6217	5.426357
190	1.30	3.1866	6.153846
191	1.305	3.4359	6.51341
192	1.31	3.6448	6.870229
193	1.315	3.9978	7.224335
194	1.32	4.1199	7.575758
195	1.325	4.5034	7.924528
196	1.335	4.8232	8.614232
197	1.34	5.1286	8.955224
System: Air-Water Distributor hole diameter: 0.004 m Bed height without any aeration: 1.17 m			
198	1.17	0	0
199	1.175	0.1565	0.425532

Appendix-3 Experimental data for electrolyte

1	2	3	4
200	1.185	0.6192	1.265823
201	1.205	1.2103	2.904564
202	1.22	1.8593	4.098361
203	1.235	2.4199	5.263158
204	1.245	2.8829	6.024096
205	1.25	3.1876	6.4
206	1.26	3.6805	7.142857
207	1.265	3.8322	7.509881
208	1.27	3.9709	7.874016
209	1.28	4.5767	8.59375
210	1.29	5.2046	9.302326
211	1.30	5.6385	10
212	1.305	5.8836	10.34483
System: Air-Water Distributor hole diameter: 0.004 m Bed height without any aeration: 1.12 m			
213	1.12	0	0
214	1.125	0.0974	0.444444
215	1.13	0.2695	0.884956
216	1.15	0.9723	2.608696
217	1.16	1.4015	3.448276
218	1.175	2.0552	4.680851
219	1.185	2.4405	5.485232
220	1.19	2.6187	5.882353
221	1.20	3.2213	6.666667
222	1.215	3.932	7.81893
223	1.225	4.2601	8.571429
224	1.235	4.8552	9.311741
225	1.24	5.123	9.677419
226	1.245	5.5363	10.04016
227	1.25	5.8368	10.4