LAMPIRAN

LAMPIRAN 1

PSYCHROMETRIC CHART

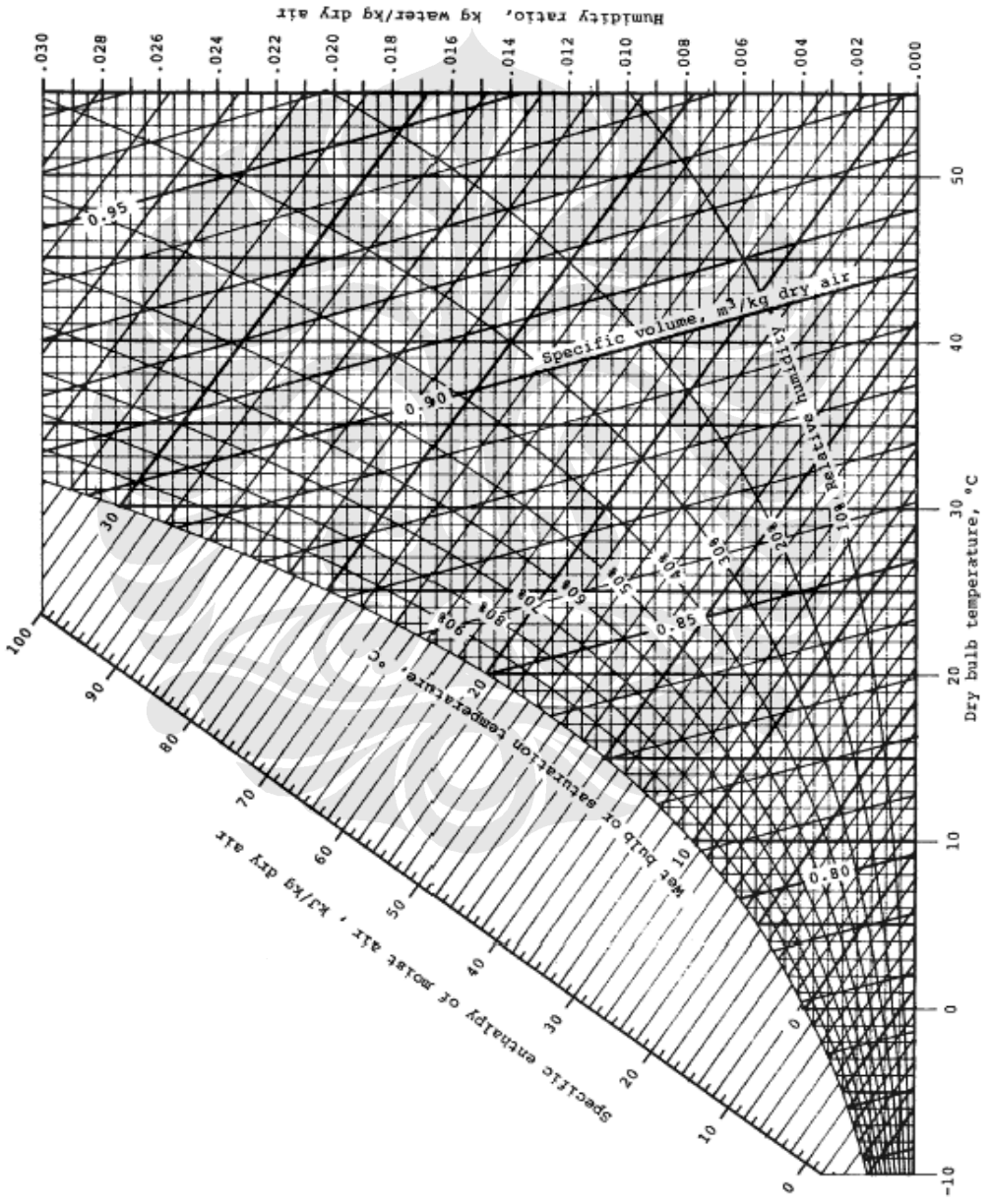

Figure A-9 Psychrometric chart for 1 atm (SI units). *Source:* Z. Zhang and M. B. Pate, "A Methodology for Implementing a Psychrometric Chart in a Computer Graphics System," *ASHRAE Transactions*, Vol. 94, Pt. 1, 1988.

LAMPIRAN 2

TABEL SIFAT UDARA PADA TEKANAN ATMOSFER

Sifat-sifat Udara pada Tekanan Atmosfer†

Nilai μ, k, c_p, dan Pr tidak terlalu bergantung pada tekanan dan dapat digunakan untuk rentang tekanan yang cukup luas.

T, K	ρ kg/m³	c_p, kJ/kg · °C	μ, kg/m · s × 10^5	ν, m²/s × 10^6	k, W/m · °C	α, m²/s × 10^4	Pr
100	3.6010	1.0266	0.6924	1.923	0.009246	0.02501	0.770
150	2.3675	1.0099	1.0283	4.343	0.013735	0.05745	0.753
200	1.7684	1.0061	1.3289	7.490	0.01809	0.10165	0.739
250	1.4128	1.0053	1.5990	11.31	0.02227	0.15675	0.722
300	1.1774	1.0057	1.8462	15.69	0.02624	0.22160	0.708
350	0.9980	1.0090	2.075	20.76	0.03003	0.2983	0.697
400	0.8826	1.0140	2.286	25.90	0.03365	0.3760	0.689
450	0.7833	1.0207	2.484	31.71	0.03707	0.4222	0.683
500	0.7048	1.0295	2.671	37.90	0.04038	0.5564	0.680
550	0.6423	1.0392	2.848	44.34	0.04360	0.6532	0.680
600	0.5879	1.0551	3.018	51.34	0.04659	0.7512	0.680
650	0.5430	1.0635	3.177	58.51	0.04953	0.8578	0.682
700	0.5030	1.0752	3.332	66.25	0.05230	0.9672	0.684
750	0.4709	1.0856	3.481	73.91	0.05509	1.0774	0.686
800	0.4405	1.0978	3.625	82.29	0.05779	1.1951	0.689
850	0.4149	1.1095	3.765	90.75	0.06028	1.3097	0.692
900	0.3925	1.1212	3.899	99.3	0.06279	1.4271	0.696
950	0.3716	1.1321	4.023	108.2	0.06525	1.5510	0.699
1000	0.3524	1.1417	4.152	117.8	0.06752	1.6779	0.702
1100	0.3204	1.160	4.44	138.6	0.0732	1.969	0.704
1200	0.2947	1.179	4.69	159.1	0.0782	2.251	0.707
1300	0.2707	1.197	4.93	182.1	0.0837	2.583	0.705
1400	0.2515	1.214	5.17	205.5	0.0891	2.920	0.705
1500	0.2355	1.230	5.40	229.1	0.0946	3.262	0.705
1600	0.2211	1.248	5.63	254.5	0.100	3.609	0.705
1700	0.2082	1.267	5.85	280.5	0.105	3.977	0.705
1800	0.1970	1.287	6.07	308.1	0.111	4.379	0.704
1900	0.1858	1.309	6.29	338.5	0.117	4.811	0.704
2000	0.1762	1.338	6.50	369.0	0.124	5.260	0.702
2100	0.1682	1.372	6.72	399.6	0.131	5.715	0.700
2200	0.1602	1.419	6.93	432.6	0.139	6.120	0.707
2300	0.1538	1.482	7.14	464.0	0.149	6.540	0.710
2400	0.1458	1.574	7.35	504.0	0.161	7.020	0.718
	0.1394	1.688	7.57	543.5	0.175	7.441	0.730

† Dari *Natl. Bur. Stand (U. S.) Circ.* 564, 1965

LAMPIRAN 3

TABEL EMISSIVITAS PERMUKAAN

Surface	Temperature, °F	Emissivity
Polished aluminum	73	0.040
Polished copper	242	0.023
Polished iron	800–1800	0.144–0.377
Cast iron, newly turned	72	0.435
Oxidized iron	212	0.736
Asbestos board	74	0.96
Red brick	70	0.93
Sixteen different oil paints, all colors	212	0.92–0.96
Water	32–212	0.95–0.963

LAMPIRAN 4

TABEL SIFAT AIR JENUH

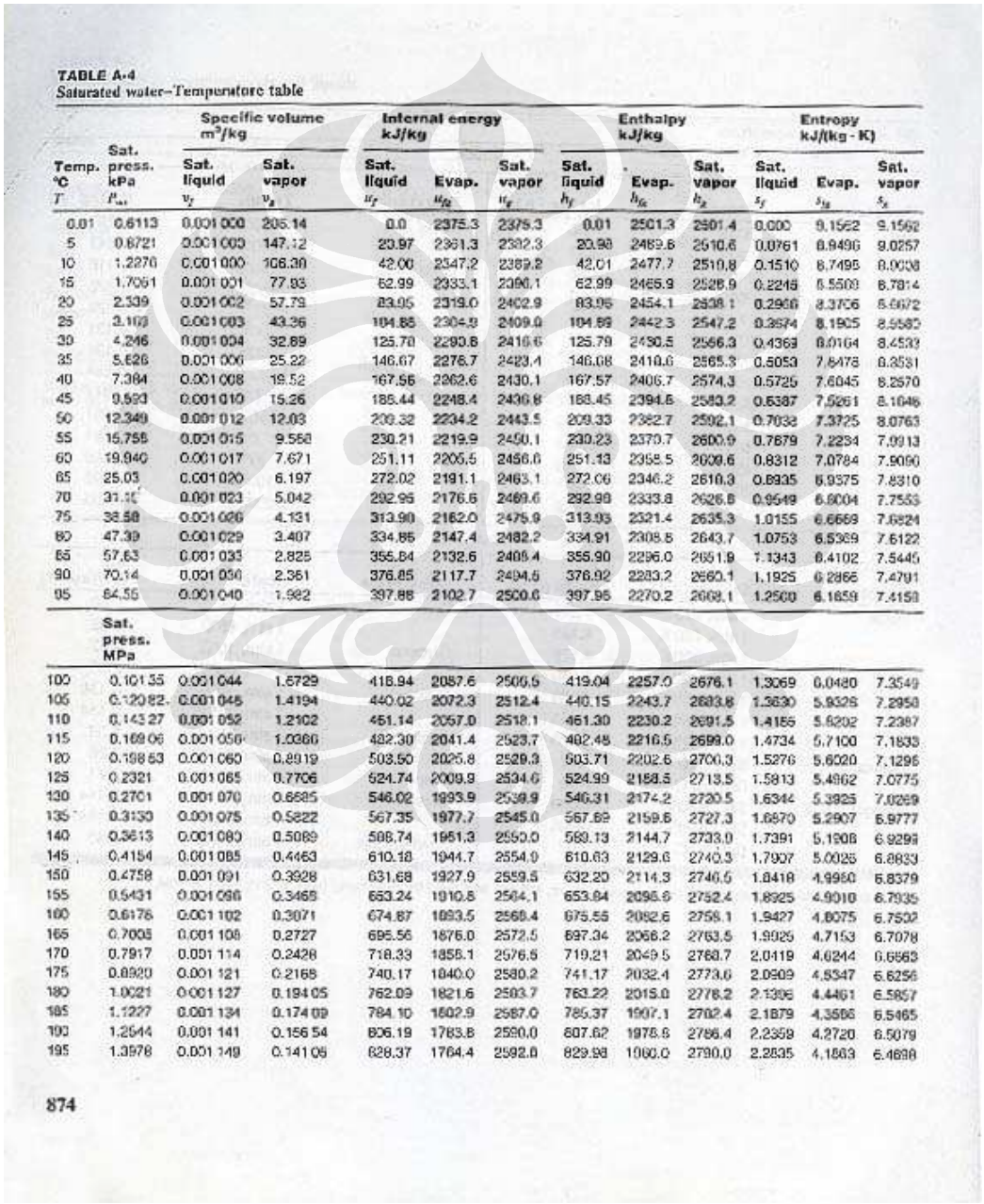

TABLE A-4
Saturated water—Temperature table

Temp. °C T	Sat. press. kPa P_{sat}	Specific volume m³/kg: Sat. liquid v_f	Specific volume m³/kg: Sat. vapor v_g	Internal energy kJ/kg: Sat. liquid u_f	Internal energy kJ/kg: Evap. u_{fg}	Internal energy kJ/kg: Sat. vapor u_g	Enthalpy kJ/kg: Sat. liquid h_f	Enthalpy kJ/kg: Evap. h_{fg}	Enthalpy kJ/kg: Sat. vapor h_g	Entropy kJ/(kg·K): Sat. liquid s_f	Entropy kJ/(kg·K): Evap. s_{fg}	Entropy kJ/(kg·K): Sat. vapor s_g
0.01	0.6113	0.001 000	205.14	0.0	2375.3	2375.3	0.01	2501.3	2501.4	0.000	9.1562	9.1562
5	0.8721	0.001 000	147.12	20.97	2361.3	2382.3	20.98	2489.6	2510.6	0.0761	8.9496	9.0257
10	1.2276	0.001 000	106.38	42.00	2347.2	2389.2	42.01	2477.7	2510.8	0.1510	8.7498	8.9008
15	1.7051	0.001 001	77.93	62.99	2333.1	2396.1	62.99	2465.9	2528.9	0.2245	8.5569	8.7814
20	2.339	0.001 002	57.79	83.95	2319.0	2402.9	83.96	2454.1	2538.1	0.2966	8.3706	8.6672
25	3.169	0.001 003	43.36	104.88	2304.9	2409.8	104.89	2442.3	2547.2	0.3674	8.1905	8.5580
30	4.246	0.001 004	32.89	125.78	2290.8	2416.6	125.79	2430.5	2556.3	0.4369	8.0164	8.4533
35	5.628	0.001 006	25.22	146.67	2276.7	2423.4	146.68	2418.6	2565.3	0.5053	7.8478	8.3531
40	7.384	0.001 008	19.52	167.56	2262.6	2430.1	167.57	2406.7	2574.3	0.5725	7.6845	8.2570
45	9.593	0.001 010	15.26	188.44	2248.4	2436.8	188.45	2394.8	2583.2	0.6387	7.5261	8.1648
50	12.349	0.001 012	12.03	209.32	2234.2	2443.5	209.33	2382.7	2592.1	0.7038	7.3725	8.0763
55	15.758	0.001 015	9.568	230.21	2219.9	2450.1	230.23	2370.7	2600.9	0.7679	7.2234	7.9913
60	19.940	0.001 017	7.671	251.11	2205.5	2456.6	251.13	2358.5	2609.6	0.8312	7.0784	7.9096
65	25.03	0.001 020	6.197	272.02	2191.1	2463.1	272.06	2346.2	2618.3	0.8935	6.9375	7.8310
70	31.19	0.001 023	5.042	292.95	2176.6	2469.6	292.98	2333.8	2626.8	0.9549	6.8004	7.7553
75	38.58	0.001 026	4.131	313.90	2162.0	2475.9	313.93	2321.4	2635.3	1.0155	6.6669	7.6824
80	47.39	0.001 029	3.407	334.86	2147.4	2482.2	334.91	2308.8	2643.7	1.0753	6.5369	7.6122
85	57.83	0.001 033	2.828	355.84	2132.6	2488.4	355.90	2296.0	2651.9	1.1343	6.4102	7.5445
90	70.14	0.001 036	2.361	376.85	2117.7	2494.5	376.92	2283.2	2660.1	1.1925	6.2866	7.4791
95	84.55	0.001 040	1.982	397.88	2102.7	2500.6	397.95	2270.2	2668.1	1.2500	6.1659	7.4159
	Sat. press. MPa											
100	0.101 35	0.001 044	1.6729	418.94	2087.6	2506.5	419.04	2257.0	2676.1	1.3069	6.0480	7.3549
105	0.120 82	0.001 045	1.4194	440.02	2072.3	2512.4	440.15	2243.7	2683.8	1.3630	5.9326	7.2956
110	0.143 27	0.001 052	1.2102	461.14	2057.0	2518.1	461.30	2230.2	2691.5	1.4185	5.8202	7.2387
115	0.169 06	0.001 056	1.0360	482.30	2041.4	2523.7	482.48	2216.5	2699.0	1.4734	5.7100	7.1833
120	0.198 53	0.001 060	0.8919	503.50	2025.8	2529.3	503.71	2202.6	2706.3	1.5276	5.6020	7.1296
125	0.2321	0.001 065	0.7706	524.74	2009.9	2534.6	524.99	2188.5	2713.5	1.5813	5.4962	7.0775
130	0.2701	0.001 070	0.6685	546.02	1993.9	2539.9	546.31	2174.2	2720.5	1.6344	5.3925	7.0269
135	0.3130	0.001 075	0.5822	567.35	1977.7	2545.0	567.69	2159.6	2727.3	1.6870	5.2907	6.9777
140	0.3613	0.001 080	0.5089	588.74	1961.3	2550.0	589.13	2144.7	2733.9	1.7391	5.1908	6.9299
145	0.4154	0.001 085	0.4463	610.18	1944.7	2554.9	610.63	2129.6	2740.3	1.7907	5.0926	6.8833
150	0.4758	0.001 091	0.3928	631.68	1927.9	2559.5	632.20	2114.3	2746.5	1.8418	4.9960	6.8379
155	0.5431	0.001 096	0.3468	653.24	1910.8	2564.1	653.84	2098.6	2752.4	1.8925	4.9010	6.7935
160	0.6178	0.001 102	0.3071	674.87	1893.5	2568.4	675.55	2082.6	2758.1	1.9427	4.8075	6.7502
165	0.7008	0.001 108	0.2727	696.56	1876.0	2572.5	697.34	2066.2	2763.5	1.9925	4.7153	6.7078
170	0.7917	0.001 114	0.2428	718.33	1858.1	2576.5	719.21	2049.5	2768.7	2.0419	4.6244	6.6663
175	0.8920	0.001 121	0.2168	740.17	1840.0	2580.2	741.17	2032.4	2773.6	2.0909	4.5347	6.6256
180	1.0021	0.001 127	0.19405	762.09	1821.6	2583.7	763.22	2015.0	2778.2	2.1396	4.4461	6.5857
185	1.1227	0.001 134	0.17409	784.10	1802.9	2587.0	785.37	1997.1	2782.4	2.1879	4.3586	6.5465
190	1.2544	0.001 141	0.15654	806.19	1783.8	2590.0	807.62	1978.8	2786.4	2.2359	4.2720	6.5079
195	1.3978	0.001 149	0.14105	828.37	1764.4	2592.8	829.98	1960.0	2790.0	2.2835	4.1863	6.4698

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LAMPIRAN 5

TABEL SIFAT AIR JENUH - 2

Table A.8 Properties of water [saturated liquid] (SI units)[†]

°F	°C	c_p, kJ/kg · °C	ρ, kg/m^3	μ, kg/m · s	k, W/m · °C	Pr	$g\beta\rho^2 c_p/\mu k$ 1/m^3 · °C
32	0	4.225	999.8	1.79×10^{-3}	0.566	13.25	
40	4.44	4.208	999.8	1.55	0.575	11.35	1.91×10^{9}
50	10	4.195	999.2	1.31	0.585	9.40	6.34×10^{9}
60	15.56	4.186	998.6	1.12	0.595	7.88	1.08×10^{10}
70	21.11	4.179	997.4	9.8×10^{-4}	0.604	6.78	1.46×10^{10}
80	26.67	4.179	995.8	8.6	0.614	5.85	1.91×10^{10}
90	32.22	4.174	994.9	7.65	0.623	5.12	2.48×10^{10}
100	37.78	4.174	993.0	6.82	0.630	4.53	3.3×10^{10}
110	43.33	4.174	990.6	6.16	0.637	4.04	4.19×10^{10}
120	48.89	4.174	988.8	5.62	0.644	3.64	4.89×10^{10}
130	54.44	4.179	985.7	5.13	0.649	3.30	5.66×10^{10}
140	60	4.179	983.3	4.71	0.654	3.01	6.48×10^{10}
150	65.55	4.183	980.3	4.3	0.659	2.73	7.62×10^{10}
160	71.11	4.186	977.3	4.01	0.665	2.53	8.84×10^{10}
170	76.67	4.191	973.7	3.72	0.668	2.33	9.85×10^{10}
180	82.22	4.195	970.2	3.47	0.673	2.16	1.09×10^{11}
190	87.78	4.199	966.7	3.27	0.675	2.03	
200	93.33	4.204	963.2	3.06	0.678	1.90	
220	104.4	4.216	955.1	2.67	0.684	1.66	
240	115.6	4.229	946.7	2.44	0.685	1.51	
260	126.7	4.250	937.2	2.19	0.685	1.36	
280	137.8	4.271	928.1	1.98	0.685	1.24	
300	148.9	4.296	918.0	1.86	0.684	1.17	
350	176.7	4.371	893.4	1.57	0.677	1.02	
400	204.4	4.467	859.4	1.36	0.665	1.00	
450	232.2	4.585	825.7	1.20	0.646	0.85	
500	260	4.731	785.2	1.07	0.616	0.83	
550	287.7	5.024	735.5	9.51×10^{-5}			
600	315.6	5.703	678.7	8.68			

[†]Converted from A. I. Brown and S. M. Marco, *Introduction to Heat Transfer*, 3d ed., McGraw-Hill, New York, 1958.

LAMPIRAN 6 DATA PERCOBAAN

6.1 PENGOLAHAN DIAMETER

PENGOLAHAN DATA KONSENTRASI 0 %

Tdb = Temperatur Ambient
Twb = Temperatur wet-Ambient
Tdb' = Temperatur sebelum ada droplet (wire-probe kering)

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
50	33.5	0.025	28	26	49	29	0	2.067743466	2.467951879
					49	29	30	2.034392765	2.367899776
					49	29	60	1.984366713	2.284523023
50	40	0.035	28	26	49	29	0	1.817613208	2.117769518
					49	29	30	1.767587157	2.017717415
					49	29	60	1.684210404	1.88431461

50	45	0.045	28	26	49	28	0	2.151120219	2.651380735
					49	28	30	2.101094167	2.584679333
					49	29	60	2.067743466	2.50130258

50	50	0.055	28	26	49	28	0	2.167795569	2.467951879
					49	29	30	2.051068116	2.401250477
					49	29	60	1.967691363	2.334549075

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
75	33.5	0.025	28	26	74	33	0	2.334549075	2.851484941
					74	34	30	2.301198374	2.734757487
					74	34	60	2.18447092	2.601354683

75	40	0.035	28	26	74	34	0	2.517977931	2.918186343
					74	34	30	2.417925827	2.718082137
					74	34	60	2.334549075	2.601354683

75	45	0.045	28	26	74	33	0	2.18447092	2.601354683
					74	33	30	2.084418817	2.534653281
					74	34	60	1.900989961	2.267847673

75	50	0.055	28	26	74	35	0	1.984366713	2.467951879
					74	35	30	1.88431461	2.234496971

					74	35	60	1.767587157	2.051068116

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
100	33.5	0.025	28.2	26	97	38	0	2.20114627	2.718082137
					97	39	30	2.101094167	2.718082137
					97	39	60	1.934340662	2.568003982
100	40	0.035	28.2	26	97	39	0	2.101094167	2.317873724
					97	39	30	1.934340662	2.20114627
					97	40	60	1.750911806	1.917665311
100	45	0.045	28.2	26	97	39	0	2.301198374	2.81813424
					97	39	30	2.151120219	2.517977931
					97	39	60	1.967691363	2.301198374
100	50	0.055	28.2	26	97	39	0	1.967691363	2.251172322
					97	40	30	1.767587157	2.034392765
					97	40	60	1.534132249	1.834288559

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]

125	33.5	0.025	28.3	26.1	122	42	0	1.934340662	2.18447092
					122	43	30	1.750911806	1.917665311
					122	43	60	1.5508076	1.534132249
125	40	0.035	28.3	26.1	122	43	0	2.134444868	2.434601178
					122	44	30	1.88431461	2.117769518
					122	44	60	1.650859703	1.750911806
125	45	0.045	28.3	26.1	122	43	0	2.001042064	2.384575126
					122	43	30	1.800937858	2.101094167
					122	44	60	1.500781548	1.717561105
125	50	0.055	28.3	26.1	122	43	0	2.417925827	2.851484941
					122	44	30	2.234496971	2.417925827
					122	44	60	1.967691363	2.101094167

T heater [℃]	**Freq [Hz]**	**Δ h [m]**	**T*db* [℃]**	**T*wb* [℃]**	**T*db'* [℃]**	**T Droplet [℃]**	**Waktu [detik]**	**Width [x 10^-3 m]**	**Height [x 10^-3 m]**
150	33.5	0.025	28.3	26.1	144	44	0	2.334549075	2.851484941
					144	45	30	2.134444868	2.417925827
					144	45	60	1.834288559	2.051068116
150	40	0.035	28.3	26.1	144	45	0	2.20114627	2.517977931
					144	46	30	1.934340662	2.18447092

					144	46	60	1.634184352	1.817613208
150	45	0.045	28.3	26.1	144	45	0	1.984366713	2.301198374
					144	45	30	1.717561105	2.017717415
					144	46	60	1.417404795	1.484106197
150	50	0.055	28.3	26.1	144	46	0	2.18447092	2.467951879
					144	46	30	1.88431461	2.067743466
					144	46	60	1.584158301	1.667535053

PENGOLAHAN DATA KONSENTRASI 1 %

Tdb = Temperatur Ambient
Twb = Temperatur wet-
Ambient
Tdb' = Temperatur sebelum ada droplet (wire-probe kering)

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
50	33.5	0.025	28	26	49	29	0	2.517977931	2.718082137
					49	29	30	2.417925827	2.618030034
					49	29	60	2.317873724	2.50130258
50	40	0.035	28	26	49	29	0	2.151120219	2.451276528
					49	29	30	2.034392765	2.351224425

					49	29	60	1.951016012	2.251172322
50	45	0.045	28	26	49	28	0	2.551328632	2.668056085
					49	28	30	2.451276528	2.568003982
					49	29	60	2.334549075	2.467951879
50	50	0.055	28	26	49	28	0	2.301198374	2.417925827
					49	29	30	2.20114627	2.317873724
					49	29	60	2.101094167	2.217821621

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
75	33.5	0.025	28	26	74	33	0	2.117769518	2.251172322
					74	34	30	2.001042064	2.134444868
					74	34	60	1.88431461	2.001042064
75	40	0.035	28	26	74	34	0	2.251172322	2.417925827
					74	34	30	2.134444868	2.301198374
					74	34	60	2.034392765	2.20114627
75	45	0.045	28	26	74	33	0	2.284523023	2.301198374
					74	33	30	2.167795569	2.18447092
					74	34	60	2.051068116	2.067743466

75	50	0.055	28	26	74	35	0	1.86763926	1.934340662
					74	35	30	1.750911806	1.800937858
					74	35	60	1.634184352	1.684210404

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
100	33.5	0.025	28.2	26	97	38	0	1.967691363	2.034392765
					97	39	30	1.800937858	1.850963909
					97	39	60	1.617509002	1.667535053
100	40	0.035	28.2	26	97	39	0	2.401250477	2.618030034
					97	39	30	2.251172322	2.451276528
					97	40	60	2.084418817	2.284523023
100	45	0.045	28.2	26	97	39	0	2.101094167	2.151120219
					97	39	30	1.934340662	1.984366713
					97	39	60	1.750911806	1.817613208
100	50	0.055	28.2	26	97	39	0	1.850963909	1.86763926
					97	40	30	1.650859703	1.667535053
					97	40	60	1.450755496	1.450755496

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]

125	33.5	0.025	28.3	26.1	122	42	0	2.117769518	2.251172322
					122	43	30	1.850963909	1.984366713
					122	43	60	1.56748295	1.700885754
125	40	0.035	28.3	26.1	122	43	0	2.134444868	2.234496971
					122	44	30	1.88431461	1.984366713
					122	44	60	1.634184352	1.750911806
125	45	0.045	28.3	26.1	122	43	0	2.117769518	2.167795569
					122	43	30	1.850963909	1.88431461
					122	44	60	1.600833651	1.634184352
125	50	0.055	28.3	26.1	122	43	0	2.017717415	2.117769518
					122	44	30	1.717561105	1.817613208
					122	44	60	1.434080146	1.500781548

T heater [℃]	**Freq [Hz]**	**Δ h [m]**	**T*db* [℃]**	**T*wb* [℃]**	**T*db'* [℃]**	**T Droplet [℃]**	**Waktu [detik]**	**Width [x 10^-3 m]**	**Height [x 10^-3 m]**
150	33.5	0.025	28.3	26.1	144	44	0	2.034392765	2.117769518
					144	45	30	1.700885754	1.784262507
					144	45	60	1.350703393	1.434080146
150	40	0.035	28.3	26.1	144	45	0	2.167795569	2.301198374

					144	46	30	1.850963909	1.967691363
					144	46	60	1.517456899	1.650859703
150	45	0.045	28.3	26.1	144	45	0	2.267847673	2.434601178
					144	45	30	1.967691363	2.051068116
					144	46	60	1.617509002	1.717561105
150	50	0.055	28.3	26.1	144	46	0	2.18447092	2.351224425
					144	46	30	1.817613208	1.951016012
					144	46	60	1.450755496	1.5508076

PENGOLAHAN DATA KONSENTRASI 2 %

Tdb = Temperatur Ambient
Twb = Temperatur wet-
Ambient
Tdb' = Temperatur sebelum ada droplet (wire-probe kering)

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
50	33.5	0.025	28	26	49	29	0	2.367899776	2.467951879
					49	29	30	2.234496971	2.367899776
					49	29	60	2.151120219	2.267847673
50	40	0.035	28	26	49	29	0	2.151120219	2.351224425

					49	29	30	2.034392765	2.234496971
					49	29	60	1.951016012	2.151120219
50	45	0.045	28	26	49	28	0	1.86763926	1.934340662
					49	28	30	1.784262507	1.834288559
					49	29	60	1.700885754	1.750911806
50	50	0.055	28	26	49	28	0	1.934340662	2.017717415
					49	29	30	1.850963909	1.934340662
					49	29	60	1.767587157	1.834288559

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
75	33.5	0.025	28	26	74	33	0	2.284523023	2.301198374
					74	34	30	2.151120219	2.20114627
					74	34	60	2.051068116	2.084418817
75	40	0.035	28	26	74	34	0	2.251172322	2.417925827
					74	34	30	2.117769518	2.301198374
					74	34	60	2.017717415	2.20114627
75	45	0.045	28	26	74	33	0	1.900989961	1.900989961
					74	33	30	1.784262507	1.784262507
					74	34	60	1.667535053	1.667535053

75	50	0.055	28	26	74	35	0	1.951016012	2.034392765
					74	35	30	1.817613208	1.900989961
					74	35	60	1.700885754	1.784262507

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
100	33.5	0.025	28.2	26	97	38	0	2.101094167	2.034392765
					97	39	30	1.951016012	1.900989961
					97	39	60	1.784262507	1.750911806
100	40	0.035	28.2	26	97	39	0	2.017717415	2.18447092
					97	39	30	1.88431461	2.051068116
					97	40	60	1.734236455	1.88431461
100	45	0.045	28.2	26	97	39	0	2.017717415	2.18447092
					97	39	30	1.88431461	2.051068116
					97	39	60	1.734236455	1.88431461
100	50	0.055	28.2	26	97	39	0	2.101094167	2.18447092
					97	40	30	1.934340662	2.017717415
					97	40	60	1.717561105	1.86763926

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
125	33.5	0.025	28.3	26.1	122	42	0	2.051068116	2.067743466
					122	43	30	1.88431461	1.900989961
					122	43	60	1.667535053	1.717561105
125	40	0.035	28.3	26.1	122	43	0	2.051068116	2.134444868
					122	44	30	1.86763926	1.934340662
					122	44	60	1.650859703	1.734236455
125	45	0.045	28.3	26.1	122	43	0	1.850963909	1.86763926
					122	43	30	1.634184352	1.667535053
					122	44	60	1.384054094	1.384054094
125	50	0.055	28.3	26.1	122	43	0	1.984366713	1.951016012
					122	44	30	1.684210404	1.667535053
					122	44	60	1.384054094	1.400729445

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]

150	33.5	0.025	28.3	26.1	144	44	0	1.984366713	2.017717415
					144	45	30	1.767587157	1.784262507
					144	45	60	1.484106197	1.517456899
150	40	0.035	28.3	26.1	144	45	0	1.900989961	2.017717415
					144	46	30	1.700885754	1.784262507
					144	46	60	1.334028043	1.484106197
150	45	0.045	28.3	26.1	144	45	0	2.101094167	2.18447092
					144	45	30	1.817613208	1.917665311
					144	46	60	1.450755496	1.56748295
150	50	0.055	28.3	26.1	144	46	0	2.167795569	2.167795569
					144	46	30	1.817613208	1.834288559
					144	46	60	1.450755496	1.500781548

PENGOLAHAN DATA KONSENTRASI 4 %

Tdb = Temperatur Ambient
Twb = Temperatur wet-
Ambient
Tdb' = Temperatur sebelum ada droplet (wire-probe kering)

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]

50	33.5	0.025	28	26	49	29	0	2.367899776	2.618030034
					49	29	30	2.267847673	2.517977931
					49	29	60	2.167795569	2.417925827

50	40	0.035	28	26	49	29	0	2.284523023	2.451276528
					49	29	30	2.20114627	2.351224425
					49	29	60	2.101094167	2.267847673

50	45	0.045	28	26	49	28	0	2.084418817	2.217821621
					49	28	30	1.984366713	2.117769518
					49	29	60	1.86763926	2.017717415

50	50	0.055	28	26	49	28	0	1.917665311	2.101094167
					49	29	30	1.817613208	2.001042064
					49	29	60	1.717561105	1.900989961

T heater [℃]	**Freq [Hz]**	**Δ h [m]**	**T*db* [℃]**	**T*wb* [℃]**	**T*db'* [℃]**	**T Droplet [℃]**	**Waktu [detik]**	**Width [x 10^-3 m]**	**Height [x 10^-3 m]**

75	33.5	0.025	28	26	74	33	0	2.417925827	2.951537044
					74	34	30	2.301198374	2.851484941
					74	34	60	2.18447092	2.734757487

75	40	0.035	28	26	74	34	0	2.217821621	2.451276528
					74	34	30	2.101094167	2.334549075

					74	34	60	2.001042064	2.217821621
75	45	0.045	28	26	74	33	0	1.86763926	2.067743466
					74	33	30	1.750911806	1.951016012
					74	34	60	1.634184352	1.817613208
75	50	0.055	28	26	74	35	0	2.017717415	2.134444868
					74	35	30	1.900989961	2.017717415
					74	35	60	1.784262507	1.88431461

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
100	33.5	0.025	28.2	26	97	38	0	2.334549075	2.851484941
					97	39	30	2.20114627	2.718082137
					97	39	60	2.067743466	2.568003982
100	40	0.035	28.2	26	97	39	0	1.934340662	2.134444868
					97	39	30	1.784262507	1.951016012
					97	40	60	1.634184352	1.817613208
100	45	0.045	28.2	26	97	39	0	1.967691363	2.18447092
					97	39	30	1.800937858	2.001042064
					97	39	60	1.600833651	1.817613208

100	50	0.055	28.2	26	97	39	0	2.134444868	2.20114627
					97	40	30	1.934340662	2.017717415
					97	40	60	1.750911806	1.850963909

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
125	33.5	0.025	28.3	26.1	122	42	0	2.167795569	2.484627229
					122	43	30	1.951016012	2.284523023
					122	43	60	1.767587157	2.067743466
125	40	0.035	28.3	26.1	122	43	0	2.167795569	2.451276528
					122	44	30	1.951016012	2.217821621
					122	44	60	1.700885754	2.001042064
125	45	0.045	28.3	26.1	122	43	0	1.967691363	2.151120219
					122	43	30	1.700885754	1.88431461
					122	44	60	1.434080146	1.600833651
125	50	0.055	28.3	26.1	122	43	0	2.18447092	2.18447092
					122	44	30	1.900989961	1.917665311
					122	44	60	1.600833651	1.617509002

T heater [℃]	Freq [Hz]	Δ h [m]	T*db* [℃]	T*wb* [℃]	T*db'* [℃]	T Droplet [℃]	Waktu [detik]	Width [x 10^-3 m]	Height [x 10^-3 m]
150	33.5	0.025	28.3	26.1	144	44	0	1.984366713	2.301198374
					144	45	30	1.717561105	1.984366713
					144	45	60	1.450755496	1.634184352
150	40	0.035	28.3	26.1	144	45	0	1.934340662	2.067743466
					144	46	30	1.700885754	1.800937858
					144	46	60	1.417404795	1.517456899
150	45	0.045	28.3	26.1	144	45	0	1.88431461	1.934340662
					144	45	30	1.600833651	1.634184352
					144	46	60	1.317352692	1.267326641
150	50	0.055	28.3	26.1	144	46	0	2.034392765	2.067743466
					144	46	30	1.684210404	1.717561105
					144	46	60	1.334028043	1.350703393

LAMPIRAN 6

6.2 PENGOLAHAN *MASS AND HEAT TRANSFER*

PENGOLAHAN DATA HEAT DAN MASS TRANSFER (0 %)

MT = Mass Transfer
HT = Heat Transfer
RU = Rumus Umum
SF = Stagnan Flim
MSF = Modifikasi Stagnan Film
EKS = Eksperimen

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
50	33.5	0								
		30	3.77E-09	0.0302716	3.75E-09	0.030272	9.40E-09	0.030362	1.60E-08	0.038880549
		60	3.61E-09	0.0290204	3.60E-09	0.02902	9.02E-09	0.029107	1.50E-08	0.036594137
50	40	0								
		30	3.30E-09	0.0263759	3.28E-09	0.026376	8.22E-09	0.026454	1.34E-08	0.032639219

		60	3.07E-09	0.0243248	3.06E-09	0.024325	7.66E-09	0.024396	1.76E-08	0.042778631
50	45	0								
		30	3.37E-09	0.0388163	3.36E-09	0.038816	1.19E-08	0.038938	1.58E-08	0.03839191
		60	4.43E-09	0.0356956	4.41E-09	0.035696	1.10E-08	0.035803	1.50E-08	0.036474416
50	50	0								
		30	4.53E-09	0.0362752	4.51E-09	0.036275	1.13E-08	0.036383	2.27E-08	0.055274647
		60	4.31E-09	0.0345849	4.29E-09	0.034585	1.07E-08	0.034688	1.73E-08	0.04196471

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
75	33.5	0								
		30	1.15E-08	0.0756301	1.13E-08	0.07563	2.26E-08	0.076067	2.35E-08	0.056771461
		60	1.08E-08	0.0705167	1.07E-08	0.070517	2.13E-08	0.070917	3.61E-08	0.087367596
75	40	0								
		30	1.28E-08	0.0834216	1.27E-08	0.083422	2.53E-08	0.083892	5.02E-08	0.12147932
		60	1.20E-08	0.0789577	1.19E-08	0.078958	2.37E-08	0.07941	3.04E-08	0.07349316
75	45	0								
		30	9.87E-09	0.0770793	9.78E-09	0.077079	2.30E-08	0.077531	2.21E-08	0.053486486
		60	1.03E-08	0.0652571	1.02E-08	0.065257	2.03E-08	0.065611	5.20E-08	0.125979599

75	50	0								
		30	1.20E-08	0.0658578	1.19E-08	0.065858	2.03E-08	0.066215	3.66E-08	0.088590256
		60	1.08E-08	0.0593091	1.07E-08	0.059309	1.83E-08	0.059632	2.83E-08	0.068376045

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
100	33.5	0								
		30	1.93E-08	0.106444	1.89E-08	0.106444	3.09E-08	0.107321	1.41E-08	0.034050424
		60	1.80E-08	0.0969849	1.77E-08	0.096985	2.88E-08	0.097752	4.11E-08	0.098826628
100	40	0								
		30	1.72E-08	0.0924891	1.68E-08	0.092489	2.75E-08	0.093222	3.09E-08	0.074468421
		60	1.66E-08	0.0771467	1.62E-08	0.077147	2.37E-08	0.077724	4.24E-08	0.101972046
100	45	0								
		30	2.15E-08	0.1140378	2.10E-08	0.114038	3.43E-08	0.11492	6.44E-08	0.154908656
		60	1.90E-08	0.1007678	1.86E-08	0.100768	3.03E-08	0.101549	4.77E-08	0.114804923
100	50	0								
		30	1.89E-08	0.0887956	1.85E-08	0.088796	2.70E-08	0.089468	4.00E-08	0.096146741
		60	1.62E-08	0.0751641	1.58E-08	0.075164	2.31E-08	0.075726	3.33E-08	0.079937758

T heater	Freq	Waktu	MT RU	HT RU	MT SF	HT SF	MT MSF	HT MSF	MT EKS	HT EKS

[℃]	[Hz]	[detik]	[kg/s]	[watt]	[kg/s]	[watt]	[kg/s]	[watt]	[kg/s]	[watt]
125	33.5	0								
		30	2.02E-08	0.1034166	1.96E-08	0.103417	3.06E-08	0.104457	4.07E-08	0.097326597
		60	1.65E-08	0.0818612	1.60E-08	0.081861	2.50E-08	0.082648	3.97E-08	0.09501836
125	40	0								
		30	2.68E-08	0.1229398	2.60E-08	0.12294	3.69E-08	0.12415	6.20E-08	0.148216407
		60	2.18E-08	0.098508	2.11E-08	0.098508	3.01E-08	0.099455	4.90E-08	0.11718621
125	45	0								
		30	2.45E-08	0.1253616	2.38E-08	0.125362	3.71E-08	0.126619	4.95E-08	0.118400355
		60	2.14E-08	0.0951234	2.07E-08	0.095123	2.95E-08	0.096015	5.17E-08	0.123546486
125	50	0								
		30	3.60E-08	0.1659318	3.49E-08	0.165932	4.96E-08	0.167573	9.04E-08	0.216099249
		60	3.01E-08	0.1378595	2.91E-08	0.13786	4.14E-08	0.139213	6.61E-08	0.157970747

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
150	33.5	0								
		30	3.21E-08	0.1782885	3.10E-08	0.178288	5.15E-08	0.180441	8.94E-08	0.213387353
		60	2.63E-08	0.1437806	2.54E-08	0.143781	4.21E-08	0.145478	7.07E-08	0.168737214

150	40	0								
		30	3.27E-08	0.164795	3.15E-08	0.164795	4.80E-08	0.166767	6.97E-08	0.166164456
		60	2.62E-08	0.1295591	2.53E-08	0.129559	3.86E-08	0.131059	5.69E-08	0.135615627

150	45	0								
		30	2.74E-08	0.1517775	2.65E-08	0.151778	4.40E-08	0.153598	5.27E-08	0.125727735
		60	2.25E-08	0.1065506	2.17E-08	0.106551	3.31E-08	0.107711	5.48E-08	0.130626532

150	50	0								
		30	3.43E-08	0.1705928	3.31E-08	0.170593	5.05E-08	0.172586	7.72E-08	0.183874908
		60	2.67E-08	0.1305567	2.57E-08	0.130557	3.93E-08	0.132044	5.41E-08	0.129002673

PENGOLAHAN DATA HEAT DAN MASS TRANSFER (1 %)

MT = Mass Transfer
HT = Heat Transfer

RU = Rumus Umum
SF = Stagnan Flim
MSF = Modifikasi Stagnan Film
EKS = Eksperimen

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
50	33.5	0								
		30	4.55E-09	0.036423	4.53E-09	0.036423	1.14E-08	0.036531	3.17E-08	0.077033242
		60	4.30E-09	0.0342806	4.28E-09	0.034281	1.07E-08	0.034382	3.16E-08	0.076819049

50	40	0								
		30	4.06E-09	0.0323054	4.04E-09	0.032305	1.01E-08	0.032401	2.63E-08	0.063897763
		60	3.81E-09	0.0304558	3.80E-09	0.030456	9.51E-09	0.030546	2.03E-08	0.049357568

50	45	0								
		30	3.74E-09	0.0427099	3.73E-09	0.04271	1.32E-08	0.042842	3.15E-08	0.076642298
		60	4.79E-09	0.0382535	4.77E-09	0.038253	1.19E-08	0.038367	3.14E-08	0.076300217

50	50	0								
		30	4.63E-09	0.0370343	4.61E-09	0.037034	1.16E-08	0.037144	2.56E-08	0.062308889
		60	4.35E-09	0.0347715	4.33E-09	0.034772	1.09E-08	0.034874	2.34E-08	0.05702795

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]

75	33.5	0								
		30	8.88E-09	0.0577335	8.78E-09	0.057734	1.75E-08	0.05806	2.53E-08	0.061138231
		60	8.19E-09	0.0530225	8.10E-09	0.053022	1.61E-08	0.053321	2.41E-08	0.058271585

75	40	0								
		30	1.05E-08	0.0681276	1.03E-08	0.068128	2.06E-08	0.068514	2.89E-08	0.070071779
		60	9.78E-09	0.0639317	9.68E-09	0.063932	1.93E-08	0.064296	2.25E-08	0.054475306

75	45	0								
		30	9.17E-09	0.0709879	9.09E-09	0.070988	2.13E-08	0.071398	2.79E-08	0.067638928

		60	9.87E-09	0.0641789	9.76E-09	0.064179	1.94E-08	0.064542	2.51E-08	0.060659776
75	50	0								
		30	9.75E-09	0.0536644	9.63E-09	0.053664	1.65E-08	0.053958	2.02E-08	0.048904237
		60	8.88E-09	0.0488664	8.77E-09	0.048866	1.50E-08	0.049134	1.65E-08	0.039838245

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
100	33.5	0								
		30	1.37E-08	0.0729297	1.35E-08	0.07293	2.19E-08	0.073496	3.06E-08	0.073667832
		60	1.20E-08	0.0631927	1.18E-08	0.063193	1.92E-08	0.063678	2.63E-08	0.063407931
100	40	0								
		30	2.05E-08	0.1103569	2.01E-08	0.110357	3.27E-08	0.111231	4.47E-08	0.107491467
		60	2.06E-08	0.0980131	2.01E-08	0.098013	2.94E-08	0.098776	4.09E-08	0.098341525
100	45	0								
		30	1.68E-08	0.0895683	1.64E-08	0.089568	2.68E-08	0.090268	3.32E-08	0.079945277
		60	1.49E-08	0.0787708	1.46E-08	0.078771	2.37E-08	0.07938	2.93E-08	0.070494962
100	50	0								
		30	1.58E-08	0.0736353	1.54E-08	0.073635	2.26E-08	0.074189	2.96E-08	0.071058762
		60	1.33E-08	0.0612668	1.30E-08	0.061267	1.90E-08	0.06172	2.41E-08	0.057852251

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
125	33.5	0								
		30	2.16E-08	0.1098354	2.10E-08	0.109835	3.27E-08	0.110927	5.35E-08	0.128068561
		60	1.77E-08	0.088479	1.72E-08	0.088479	2.68E-08	0.089338	4.26E-08	0.10208664
125	40	0								
		30	2.54E-08	0.1173745	2.46E-08	0.117375	3.50E-08	0.118541	5.05E-08	0.120772172
		60	2.13E-08	0.0978523	2.07E-08	0.097852	2.94E-08	0.098816	3.79E-08	0.090547578
125	45	0								
		30	2.33E-08	0.1180784	2.27E-08	0.118078	3.53E-08	0.119243	5.27E-08	0.126250928
		60	2.10E-08	0.0957954	2.03E-08	0.095795	2.89E-08	0.09673	3.62E-08	0.086512134
125	50	0								
		30	2.51E-08	0.1136059	2.43E-08	0.113606	3.46E-08	0.114701	5.26E-08	0.12576566
		60	1.97E-08	0.0880605	1.91E-08	0.088061	2.72E-08	0.08889	3.75E-08	0.08955046

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
150	33.5	0								
		30	2.29E-08	0.1241442	2.21E-08	0.124144	3.67E-08	0.125591	5.79E-08	0.138305883
		60	1.74E-08	0.0918704	1.68E-08	0.09187	2.79E-08	0.092901	4.11E-08	0.098033307

150	40	0								
		30	2.98E-08	0.1486328	2.87E-08	0.148633	4.38E-08	0.150381	6.65E-08	0.158374181
		60	2.35E-08	0.1153555	2.26E-08	0.115356	3.46E-08	0.116681	4.73E-08	0.112657672

150	45	0								
		30	3.07E-08	0.1677586	2.96E-08	0.167759	4.92E-08	0.169737	7.74E-08	0.18476603
		60	2.62E-08	0.128726	2.53E-08	0.128726	3.86E-08	0.130204	5.51E-08	0.131197938

150	50	0								
		30	3.25E-08	0.1598035	3.14E-08	0.159803	4.79E-08	0.161636	7.88E-08	0.187700595
		60	2.44E-08	0.1170481	2.35E-08	0.117048	3.59E-08	0.118347	5.24E-08	0.124933819

PENGOLAHAN DATA HEAT DAN MASS TRANSFER (2 %)

MT = Mass Transfer
HT = Heat Transfer

RU = Rumus Umum **MSF = Modifikasi Stagnan Film**

SF = Stagnan Flim **EKS = Eksperimen**

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
50	33.5	0								
		30	4.04E-09	0.0321774	4.03E-09	0.032177	1.01E-08	0.032272	3.12E-08	0.075880473
		60	3.81E-09	0.0304291	3.79E-09	0.030429	9.50E-09	0.030519	2.24E-08	0.05446627

50	40	0								
		30	3.92E-09	0.0311246	3.90E-09	0.031125	9.77E-09	0.031216	2.69E-08	0.065536408
		60	3.68E-09	0.0294607	3.67E-09	0.029461	9.19E-09	0.029548	1.75E-08	0.042632956
50	45	0								
		30	2.39E-09	0.0271496	2.38E-09	0.02715	8.46E-09	0.027233	1.52E-08	0.03690595
		60	3.04E-09	0.0242314	3.03E-09	0.024231	7.59E-09	0.024303	1.25E-08	0.030415401
50	50	0								
		30	3.62E-09	0.0289544	3.61E-09	0.028954	9.04E-09	0.02904	1.50E-08	0.036423738
		60	3.39E-09	0.0270305	3.38E-09	0.027031	8.47E-09	0.02711	1.50E-08	0.036523295

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
75	33.5	0								
		30	9.51E-09	0.0619104	9.40E-09	0.06191	1.87E-08	0.062262	2.79E-08	0.067529226
		60	8.86E-09	0.0577335	8.76E-09	0.057734	1.75E-08	0.058061	2.34E-08	0.056546795
75	40	0								
		30	1.04E-08	0.0677749	1.03E-08	0.067775	2.05E-08	0.068158	3.09E-08	0.074804645
		60	9.73E-09	0.0635857	9.62E-09	0.063586	1.92E-08	0.063948	2.23E-08	0.054057145
75	45	0								

		30	7.02E-09	0.0539984	6.95E-09	0.053998	1.63E-08	0.054308	1.90E-08	0.046000032
		60	7.43E-09	0.0480126	7.35E-09	0.048013	1.46E-08	0.048281	1.66E-08	0.040293003
75	50	0								
		30	1.04E-08	0.0571726	1.03E-08	0.057173	1.75E-08	0.057485	2.37E-08	0.057251666
		60	9.49E-09	0.0522799	9.37E-09	0.05228	1.60E-08	0.052567	1.81E-08	0.04379839

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
100	33.5	0								
		30	1.46E-08	0.0784079	1.43E-08	0.078408	2.33E-08	0.079027	2.70E-08	0.064928079
		60	1.31E-08	0.0697879	1.28E-08	0.069788	2.09E-08	0.070332	2.58E-08	0.06208073
100	40	0								
		30	1.61E-08	0.0864111	1.57E-08	0.086411	2.56E-08	0.087096	2.64E-08	0.063422706
		60	1.60E-08	0.0757136	1.56E-08	0.075714	2.28E-08	0.076298	2.70E-08	0.064791512
100	45	0								
		30	1.67E-08	0.0900926	1.64E-08	0.090093	2.67E-08	0.090806	2.64E-08	0.063422706
		60	1.51E-08	0.080288	1.48E-08	0.080288	2.41E-08	0.080914	2.70E-08	0.064913369
100	50	0								
		30	1.97E-08	0.0936693	1.93E-08	0.093669	2.82E-08	0.094393	3.37E-08	0.081102572
		60	1.74E-08	0.0818953	1.70E-08	0.081895	2.49E-08	0.082519	3.11E-08	0.074705939

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
125	33.5	0								
		30	2.07E-08	0.107898	2.01E-08	0.107898	3.14E-08	0.109012	3.10E-08	0.074232607
		60	1.81E-08	0.0927661	1.76E-08	0.092766	2.74E-08	0.093703	3.06E-08	0.073341285
125	40	0								
		30	2.45E-08	0.1146205	2.37E-08	0.114621	3.38E-08	0.115785	3.64E-08	0.087014308
		60	2.11E-08	0.0978523	2.05E-08	0.097852	2.91E-08	0.09883	3.20E-08	0.07660176
125	45	0								
		30	1.95E-08	0.09976	1.90E-08	0.09976	2.95E-08	0.10076	3.06E-08	0.073242642
		60	1.73E-08	0.0775159	1.68E-08	0.077516	2.38E-08	0.078253	2.93E-08	0.070037122
125	50	0								
		30	2.34E-08	0.1055981	2.26E-08	0.105598	3.22E-08	0.106613	4.62E-08	0.110361274
		60	1.84E-08	0.0819812	1.78E-08	0.081981	2.53E-08	0.082754	3.18E-08	0.0760792

T heater	Freq	Waktu	MT RU	HT RU	MT SF	HT SF	MT MSF	HT MSF	MT EKS	HT EKS

[℃]	[Hz]	[detik]	[kg/s]	[watt]	[kg/s]	[watt]	[kg/s]	[watt]	[kg/s]	[watt]
150	33.5	0								
		30	2.28E-08	0.1273588	2.20E-08	0.127359	3.65E-08	0.128912	3.82E-08	0.091205501
		60	1.87E-08	0.1015627	1.80E-08	0.101563	2.99E-08	0.102754	3.52E-08	0.083997178
150	40	0								
		30	2.57E-08	0.1312613	2.48E-08	0.131261	3.79E-08	0.132858	3.53E-08	0.084188334
		60	2.03E-08	0.0984875	1.96E-08	0.098487	2.99E-08	0.099597	3.95E-08	0.094119014
150	45	0								
		30	2.74E-08	0.1517775	2.65E-08	0.151778	4.40E-08	0.153598	5.27E-08	0.125727735
		60	2.32E-08	0.1124004	2.24E-08	0.1124	3.42E-08	0.113664	4.87E-08	0.116151234
150	50	0								
		30	3.09E-08	0.1530477	2.98E-08	0.153048	4.55E-08	0.154824	6.49E-08	0.154714118
		60	2.36E-08	0.1143989	2.28E-08	0.114399	3.48E-08	0.115684	4.55E-08	0.108462795

PENGOLAHAN DATA HEAT DAN MASS TRANSFER (4 %)

MT = Mass Transfer
HT = Heat Transfer

RU = Rumus Umum
SF = Stagnan Flim
MSF = Modifikasi Stagnan Film
EKS = Eksperimen

T heater	Freq	Waktu	MT RU	HT RU	MT SF	HT SF	MT MSF	HT MSF	MT EKS	HT EKS

[℃]	[Hz]	[detik]	[kg/s]	[watt]	[kg/s]	[watt]	[kg/s]	[watt]	[kg/s]	[watt]
50	33.5	0								
		30	4.25E-09	0.0339545	4.23E-09	0.033954	1.06E-08	0.034055	2.87E-08	0.069713639
		60	4.01E-09	0.0320173	3.99E-09	0.032017	1.00E-08	0.032112	2.64E-08	0.064121023
50	40	0								
		30	4.25E-09	0.0340149	4.23E-09	0.034015	1.06E-08	0.034116	2.37E-08	0.057735124
		60	4.02E-09	0.0321359	4.00E-09	0.032136	1.00E-08	0.032231	2.19E-08	0.05326501
50	45	0								
		30	2.84E-09	0.032281	2.83E-09	0.032281	1.00E-08	0.03238	2.12E-08	0.05164397
		60	3.59E-09	0.0285218	3.58E-09	0.028522	8.96E-09	0.028605	2.07E-08	0.050466399
50	50	0								
		30	3.68E-09	0.0293085	3.67E-09	0.029308	9.19E-09	0.029395	1.84E-08	0.044848987
		60	3.42E-09	0.0272037	3.41E-09	0.027204	8.54E-09	0.027284	1.66E-08	0.04038651

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
75	33.5	0								
		30	1.19E-08	0.0780525	1.18E-08	0.078052	2.35E-08	0.078499	3.59E-08	0.086895827
		60	1.12E-08	0.0732306	1.11E-08	0.073231	2.21E-08	0.073648	3.54E-08	0.085746093

75	40	0								
		30	1.05E-08	0.0681276	1.03E-08	0.068128	2.06E-08	0.068514	2.89E-08	0.070071779
		60	9.75E-09	0.0635857	9.64E-09	0.063586	1.92E-08	0.063947	2.43E-08	0.058790011

75	45	0								
		30	7.38E-09	0.0567913	7.30E-09	0.056791	1.72E-08	0.057117	2.04E-08	0.049389495
		60	7.80E-09	0.0503309	7.71E-09	0.050331	1.54E-08	0.050612	1.91E-08	0.046357307

75	50	0								
		30	1.11E-08	0.0614691	1.10E-08	0.061469	1.87E-08	0.061809	2.27E-08	0.05497313
		60	1.02E-08	0.0561131	1.01E-08	0.056113	1.72E-08	0.056421	2.15E-08	0.052057338

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]

100	33.5	0								
		30	2.02E-08	0.1094845	1.98E-08	0.109485	3.23E-08	0.110362	4.06E-08	0.097790449
		60	1.87E-08	0.100936	1.83E-08	0.100936	2.99E-08	0.10174	3.86E-08	0.092899873

100	40	0								
		30	1.51E-08	0.0804568	1.48E-08	0.080457	2.41E-08	0.081084	3.03E-08	0.072931568
		60	1.50E-08	0.0709945	1.46E-08	0.070994	2.14E-08	0.071545	2.18E-08	0.052473754

100	45	0								
		30	1.62E-08	0.0859236	1.58E-08	0.085924	2.58E-08	0.086591	3.31E-08	0.079554747

		60	1.41E-08	0.0742711	1.38E-08	0.074271	2.25E-08	0.07484	2.98E-08	0.071819345
100	50	0								
		30	1.99E-08	0.0936693	1.94E-08	0.093669	2.84E-08	0.094386	3.93E-08	0.094420012
		60	1.75E-08	0.0824201	1.71E-08	0.08242	2.50E-08	0.083051	2.98E-08	0.071620847

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
125	33.5	0								
		30	2.43E-08	0.1256882	2.36E-08	0.125688	3.67E-08	0.126975	4.90E-08	0.117344618
		60	2.13E-08	0.1098354	2.07E-08	0.109835	3.22E-08	0.110956	3.88E-08	0.092898221
125	40	0								
		30	2.79E-08	0.1300021	2.70E-08	0.130002	3.84E-08	0.131315	5.17E-08	0.123658217
		60	2.39E-08	0.1105257	2.32E-08	0.110526	3.29E-08	0.111627	4.30E-08	0.102898389
125	45	0								
		30	2.21E-08	0.1116349	2.15E-08	0.111635	3.34E-08	0.112735	4.72E-08	0.11294773
		60	1.95E-08	0.0878237	1.89E-08	0.087824	2.69E-08	0.088665	3.59E-08	0.085891902
125	50	0								
		30	2.76E-08	0.1263167	2.67E-08	0.126317	3.80E-08	0.127557	5.49E-08	0.131276963
		60	2.22E-08	0.0998844	2.15E-08	0.099884	3.06E-08	0.100836	4.43E-08	0.105885637

T heater [℃]	Freq [Hz]	Waktu [detik]	MT RU [kg/s]	HT RU [watt]	MT SF [kg/s]	HT SF [watt]	MT MSF [kg/s]	HT MSF [watt]	MT EKS [kg/s]	HT EKS [watt]
150	33.5	0								
		30	2.45E-08	0.1346775	2.36E-08	0.134677	3.92E-08	0.136283	5.54E-08	0.132269036
		60	1.95E-08	0.105363	1.88E-08	0.105363	3.13E-08	0.106585	4.23E-08	0.101048864
150	40	0								
		30	2.61E-08	0.1321148	2.52E-08	0.132115	3.85E-08	0.1337	4.19E-08	0.099817273
		60	2.11E-08	0.1040246	2.03E-08	0.104025	3.10E-08	0.105231	3.50E-08	0.083328005
150	45	0								
		30	2.29E-08	0.1247613	2.21E-08	0.124761	3.67E-08	0.126224	4.32E-08	0.103201234
		60	1.89E-08	0.0911401	1.83E-08	0.09114	2.79E-08	0.092157	3.28E-08	0.078259302
150	50	0								
		30	2.83E-08	0.1388669	2.73E-08	0.138867	4.16E-08	0.140458	5.87E-08	0.13994239
		60	2.11E-08	0.1005746	2.03E-08	0.100575	3.10E-08	0.101683	3.96E-08	0.094422272