Precursor	HTT (°C)	P at%	S at%	N at%	O at%	d_{002}/Å	L_a/Å	L_c/Å	n	I_D/I_G	D/nm	V_{Total}/cm^3/g	SSE/m^2/g	Cyclic factor	Rate factor	ICE/%	Capacity/mAh/g(100 mA/g)	Working Plateau/v	-lg (D_{Na^+})	Ref.
waste cork	1200	0	0	0	1.14	3.97	78.0	12.5	3.15	2.47	9.94	0.014	9.23	0.036156	0.26	71	240.7	0.37	9.05	[1]
waste cork	1400	0	0	0	0.73	3.92	86.6	13.6	3.47	2.22	9.01	0.011	8.57	0.028795	0.36	76	296.3	0.36	9.14	[1]
waste cork	1600	0	0	0	0.24	3.76	101.7	14.5	3.86	1.89	11.72	0.015	5.54	0.024776	0.45	81	274.8	0.33	8.88	[1]
Plant biomass	1050	0	0	0	10.5	3.76	24.89	8.04	2.14	2.10	2.85	0.330	462.5	-	0.10	69.7	35	0.23	9.61	[2]
Plant biomass	1050	0	0	0	12.5	3.86	19.41	10.10	2.62	1.79	83.94	0.034	1.6	0.005029	0.12	72.0	184	0.31	8.06	[2]
the mixture of sucrose and phenol formaldehyde resin	1300	0	0	0	5.88	4.10	49.67	15.82	3.86	1.06	6.28	0.0063	4	0.107294	-	70	408	0.75	-	[3]
the mixture of sucrose and phenol formaldehyde resin	1300	0	0	0	1.22	4.10	50.93	16.12	3.93	0.79	5.35	0.0053	4	0.057423	-	85	310	0.27	-	[3]
glucose	1000	0	0	0	15.3	3.91	38.28	18.41	3.22	1.00	2.3	0.19	338.8	0.000627	0.11	44	183.4	0.41	-	[4]
glucose	1300	0	0	0	9.8	3.85	46.01	20.02	3.40	1.08	2.9	0.024	34.4	0.000649	0.45	80	312.1	0.36	9.49	[4]
glucose	1500	0	0	0	3.0	3.77	57.57	21.36	3.55	1.12	3.3	0.019	21.6	0.000823	0.42	82	295.1	0.27	-	[4]
glucose	1000	0	0	0	9.8	3.88	57.43	20.78	3.32	1.05	2.2	0.048	85.1	0.001285	0.26	60	163.1	0.33	-	[4]

glucose	1300	0	0	0	6.8	3.78	69.30	21.93	3.54	1.12	2.3	0.016	28.0	0.001240	0.40	83	203.8	0.29	9.70	[4]
glucose	1500	0	0	0	4.3	3.57	20.99	29.58	4.17	1.39	2.3	0.014	22.6	0.001001	0.37	75.9	158.1	0.23	-	[4]
rice husk	1100	0	0	0	10.92	4.03	45.34	11.6	2.89	1.52	5.28	0.0035	2.68	0.018775	0.18	64	258	0.50	12.98	[5]
rice husk	1300	0	0	0	9.39	3.95	58.35	12.3	3.11	1.40	22.56	0.0018	0.27	0.061136	0.20	66	265	0.70	12.91	[5]
rice husk	1500	0	0	0	5.66	3.84	62.08	13.1	3.41	1.34	25.67	0.0015	0.23	0.018776	0.29	68	258	0.34	12.94	[5]
petroleum asphalt	1100	0	0	0	8.63	3.82	30.64	9.41	2.46	1.69	1.09	0.0275	101.29	0.098787	0.44	80.8	126.5	0.35	-	[6]
petroleum asphalt	1100	0	0	0	15.61	3.89	26.43	8.87	2.28	1.94	1.18	0.1081	367.94	0.125937	0.48	83.6	131.5	0.39	9.41	[6]
petroleum asphalt	1100	0	0	0	18.99	3.92	31.72	8.61	2.20	1.90	1.14	0.0926	323.88	0.108247	0.50	82.8	156.4	0.40	-	[6]
petroleum asphalt	1100	0	0	0	0.18	3.49	39.93	19.56	5.60	1.37	0.74	0.0014	7.60	0.100512	0.16	67.5	83.2	0.33	-	[6]
anthracite	1300	0	0	0	11.23	4.02	38.1	11.8	2.94	2.25	2.24	0.26	440.0	0.000986	0.13	50.9	125.8	0.48	8.95	[7]
anthracite	700	0	0	0	6.75	3.85	46.5	15.8	4.10	1.69	2.89	0.06	81.0	0.000163	0.39	82.3	254.6	0.26	9.13	[7]
anthracite	1300	0	0	0	5.36	3.69	54.1	17.0	4.61	2.64	15.68	0.008	1.5	0.001124	0.29	78.6	182.2	0.26	9.24	[7]
sucrose and coal	1200	0	0	0	9.10	3.96	49.02	17.59	4.44	2.02	5.468	0.1103	80.69	0.002645	0.35	61.1	103.1	0.41	10.89	[8]
platanus bark	700	0	0	0	9.63	3.94	16.2	7.6	1.93	0.84	4.37	0.658	602	0.009694	0.19	34	236	0.87	12.35	[9]
platanus bark	700	0	0	0	14.14	3.79	33.90	8.85	2.34	0.78	2.15	0.165	307.2	0.003442	0.09	40	91.1	0.35	12.37	[9]
buckwheat hulls	700	0	0	0	5.79	3.87	53.21	13.5	3.49	1.79	4.349	0.044	40.48	0.001854	0.16	30.0	215.03	0.40	-	[10]
buckwheat hulls	900	0	0	0	4.67	3.84	71.15	14.6	3.80	1.75	4.454	0.037	33.23	0.002217	0.55	35.0	285.8	0.33	-	[10]

buckwheat hulls	1100	0	0	0	4.14	3.83	71.08	15.9	4.15	1.64	5.000	0.035	28.00	0.000059	0.26	53.4	366.28	0.30	8.56	[10]
buckwheat hulls	1300	0	0	0	3.97	3.74	83.24	16.8	4.49	1.59	5.507	0.027	20.74	0.001824	0.19	41.3	241.72	0.27	-	[10]
paper towels	1400	0	0	0	5.85	3.97	70.59	10.21	2.57	1.29	0.793	0.00097	4.89	0.045850	1.12	86.50	231.6	0.23	12.28	[11]
paper towels	1400	0	0	0	3.27	3.94	71.24	10.77	2.73	1.18	1.315	0.00215	6.54	0.033725	1.54	92.05	225.45	0.28	11.99	[11]
paper towels	1400	0	0	0	3.81	3.54	73.18	18.69	5.28	1.03	0.206	0.00029	5.62	0.125525	1.14	74.62	90.01	0.26	12.09	[11]
waste wood	1500	0	0	0	5.62	3.404	63.53	48.66	14.29	1.15	4.69	0.05579	47.6	0.000212	0.14	63.9	202.64	0.31	-	[12]
waste wood	1500	0	0	0	5.28	3.784	53.00	13.46	3.56	1.17	2.24	0.00816	14.6	0.000123	0.10	69.9	241.40	0.22	-	[12]
waste wood	1500	0	0	0	4.81	3.733	63.58	13.47	3.61	1.295	5.02	0.00326	2.6	0.000128	0.32	71.1	383.65	0.32	-	[12]
biomass	1100	0	0	0	2.87	3.45	-	-	-	0.99	2.20	0.125	228	0.000123	0.06	52	194.7	0.28	-	[13]
D-glucose	1000	0	0	0	5.9	4.10	13.9	12.1	2.95	0.88	1.39	0.175	382	-	0.06	62.68	160.7	0.42	8.80	[14]
D-glucose	1300	0	0	0	4.0	3.93	14.8	12.5	3.18	0.99	1.99	0.031	10	-	0.29	84.17	188.4	0.28	8.91	[14]
D-glucose	1500	0	0	0	3.3	3.83	15.5	13.2	3.45	1.10	2.29	0.047	11	0.000028	0.44	86.90	227.1	0.29	8.92	[14]
D-glucose	1700	0	0	0	2.3	3.63	21.7	14.1	3.88	1.13	3.87	0.023	7	-	0.32	79.26	118.5	0.10	8.90	[14]
D-glucose	1900	0	0	0	1.3	3.55	24.2	17.5	4.93	1.18	4.93	0.031	7	-	0.15	69.89	89.1	0.10	9.43	[14]
coal pitch	900	0	0	0	6.97	3.59	42.00	27.05	7.53	1.27	3.65	0.004	4.8	0.001074	0.14	57.95	158.0	-	-	[15]
coal pitch	900	0	0	0	6.31	3.51	42.05	27.17	7.74	1.23	0.77	0.001	3.9	0.001914	0.13	57.95	83.6	-	-	[15]
cotton roll	700	0	0	0	10.11	3.73	42.07	29.20	7.83	0.81	2.53	0.002	3.3	0.000053	0.20	54.1	146.7	0.34	-	[16]
Bacterial cellulose	800	0	0	0	10.63	3.86	45.08	26.97	6.99	0.99	0.26	0.031	465	0.000015	0.03	53.58	166.7	0.50	-	[17]
glucose	500	0	0	0	7.19	3.89	33.57	22.16	5.70	0.168	9.76	0.274	56.15	0.000261	0.05	54.2	201.1	0.56	-	[18]
phenolic resin	800	0	0	0	10.53	3.92	44.56	20.65	5.27	0.951	32.21	0.0062	0.770	0.000026	0.04	66.22	131.8	0.46	9.45	[19]

citrate sodium	800	0	0	0	5.75	3.66	50.64	23.64	6.46	0.97	6.74	0.427	253	0.009940	0.05	24.97	162.0	0.65	-	[20]
phenolic resin	700	0	0	0	3.99	4.02	58.06	21.18	5.27	0.84	7.36	1.806	981.7	0.001031	0.09	17.60	-	-	9.59	[21]
sucrose	1300	0	0	0	4.71	3.84	18.0	7.7	2.01	1.69	1.986	0.082	164.6	0.002834	0.17	66	126.1	0.24	10.59	[22]
sucrose	1300	0	0	0	4.73	3.94	16.3	6.3	1.60	2.20	2.838	0.012	16.5	0.002164	0.24	79	208.2	0.24	10.18	[22]
sucrose	1300	0	0	0	5.50	3.95	15.5	5.7	1.44	2.03	2.741	0.014	20.6	0.002190	0.25	85	229.5	0.21	10.33	[22]
furfural	1100	0	0	0	3.9	3.87	66.47	18.90	4.88	1.1	2.66	0.011	16.9	0.000178	0.15	72	283.4	0.21	-	[23]
Pistachio shells	900	0	0	0	5.03	3.86	47.5	8.1	2.10	2.20	1.80	0.266	593	0.000492	0.07	29	67.0	0.44	12.54	[24]
Pistachio shells	1000	0	0	0	4.80	3.84	64.1	13.7	3.57	1.75	1.82	0.368	808	0.000623	0.07	24	81.2	0.39	12.64	[24]
Pistachio shells	1200	0	0	0	3.18	3.84	66.7	16.7	4.35	1.58	2.14	0.273	511	0.001081	0.07	38	125.6	0.35	13.00	[24]
Pistachio shells	1400	0	0	0	2.19	3.81	53.1	13.6	3.57	1.60	4.87	0.018	15	0.000247	0.22	74	210.3	0.20	11.62	[24]
starch	1200	0	0	0	8.80	3.94	45.1	14.5	3.68	2.15	4.94	0.012	9.72	0.000036	0.26	84.9	147.1	0.23	9.35	[25]
starch	1300	0	0	0	7.93	3.91	47.1	14.8	3.79	1.93	4.94	0.011	8.9	0.000018	0.27	87.3	281.4	0.22	9.58	[25]
starch	1400	0	0	0	7.30	3.86	49.1	15.2	3.94	1.83	5.27	0.009	6.83	-	0.26	83.3	144.4	0.20	9.33	[25]
longan kernel	1300	0	0	0	13.0	3.90	15.5	4.3	1.10	1.79	3.45	0.021	24.6	0.000230	0.08	79	345.0	0.32	6.40	[26]
Balsa wood	1200	0	0	0	4.12	3.81	67.27	18.68	4.90	1.11	6.75	0.014	8.20	-	0.07	64.7	254.4	0.20	9.63	[27]
Balsa wood	1400	0	0	0	3.65	3.80	65.15	16.96	4.46	1.15	9.30	0.019	7.97	0.003781	0.06	64.2	287.4	0.16	10.23	[27]
Balsa wood	1600	0	0	0	3.31	3.75	82.05	19.78	5.27	1.23	11.49	0.024	8.35	-	0.07	60.3	262.8	0.18	8.88	[27]
basswood	1300	0	0	0	5.64	3.88	77.00	18.93	4.88	2.11	18.46	0.0104	2.2530	0.000065	0.08	92.6	279.5	0.22	6.98	[28]
pitch	800	0	0	0	16.3	3.87	33.9	11.5	2.97	2.04	6.65	0.226	136.0	-	0.11	59.9	186.8	0.37	9.62	[29]
pitch	1000	0	0	0	16.75	3.85	32.5	11.8	3.06	2.01	6.96	0.210	120.7	-	0.15	63.9	203.9	0.31	9.67	[29]
pitch	1200	0	0	0	10.92	3.86	37.3	12.0	3.11	1.96	13.06	0.016	4.9	-	0.18	67.1	227.7	0.25	9.71	[29]
pitch	1400	0	0	0	5.44	3.66	42.4	12.5	3.42	1.91	13.66	0.014	4.1	-	0.15	76.3	158.9	0.21	9.70	[29]

pitch	1600	0	0	0	5.32	3.43	62.2	52.1	15.19	1.89	9.76	0.010	4.1	-	0.19	72.7	197.2	0.17	9.69	[29]
pitch	2800	0	0	0	3.03	3.36	82.4	88.1	26.22	0.52	10	0.007	2.8	-	0.04	37.0	39.4	0.29	9.76	[29]
bamboo	900	0	0	0	10.52	3.92	11.65	7.55	1.93	2.25	1.63	0.212	519.6	0.000016	0.31	68.2	165.9	0.37	10.22	[30]
bamboo	1100	0	0	0	8.10	3.87	12.55	7.98	2.06	2.22	3.70	0.033	35.6	0.000020	0.04	72.7	303.8	0.30	9.69	[30]
bamboo	1300	0	0	0	7.86	3.85	11.88	8.52	2.21	2.20	5.22	0.017	13.04	0.000041	0.12	84.1	326.8	0.19	9.91	[30]
bamboo	1500	0	0	0	2.56	3.71	18.06	9.83	2.65	2.04	18.06	0.017	3.76	0.000032	0.24	85.6	300.0	0.11	9.71	[30]
bamboo	1700	0	0	0	2.42	3.70	17.01	10.27	2.78	1.97	15.18	0.014	3.69	0.000025	0.31	87.6	310.2	0.11	9.84	[30]
corncobs	950	0	0	0	1.6	3.87	50.80	7.8	2.02	1.00	2.10	0.065	124.4	0.000178	0.10	59.4	254.0	0.36	10.56	[31]
kapok fibers	1200	0	0	0	1.9	3.91	61.78	21.97	5.62	1.03	5.34	0.041	30.8	0.006214	0.11	77	252.2	0.43	6.87	[32]
kapok fibers	1400	0	0	0	1.2	3.57	84.86	22.28	6.24	1.08	6.66	0.032	19.2	0.001934	0.17	83	403.3	0.40	6.85	[32]
kapok fibers	1600	0	0	0	0.6	3.56	87.04	26.00	7.30	1.1	5.73	0.022	15.5	0.001709	0.25	90	508.0	0.37	6.67	[32]
phenolic resin	1500	0	0	0	3.84	3.72	48.0	12.2	3.28	1.09	18.84	0.561	119	0.002584	0.09	60	189.4	0.30	-	[33]
corn starch	900	0	0	0	5.98	3.80	34.3	7.9	2.08	0.92	1.64	0.200	486.92	0.002213	0.15	77	219.5	0.38	-	[34]
corn starch	900	0	0	0	4.31	3.70	33.6	9.4	2.54	0.97	14.81	0.020	5.40	0.002711	0.21	67	257.3	0.36	9.21	[34]
Sorghum stalk	1100	0	0	0	3.74	3.95	73.15	8.0	2.03	0.36	2.01	0.118	234.5	-	0.79	57.5	133.5	0.54	-	[35]
Sorghum stalk	1300	0	0	0	3.71	3.81	59.99	8.8	2.31	0.52	3.71	0.033	35.55	-	0.30	62.2	211.5	0.40	-	[35]
Sorghum stalk	1500	0	0	0	3.62	3.72	71.62	9.5	2.55	0.60	2.81	0.060	85.55	-	1.07	58.8	127.8	0.38	-	[35]
epoxy resins	1500	0	0	0	3.94	3.54	50.7	15.0	4.24	1.08	5.90	0.111	75.11	0.006056	0.14	79.3	94	0.23	12.39	[36]
epoxy resins	1500	0	0	0	3.49	3.60	47.1	13.7	3.81	1.10	5.39	0.096	71.12	0.004476	0.17	79.0	171	0.19	12.50	[36]
epoxy resins	1500	0	0	0	3.59	3.65	40.4	12.8	3.51	1.13	5.48	0.083	60.83	0.004121	0.21	80.9	209	0.20	12.69	[36]
epoxy resins	1500	0	0	0	3.65	3.72	37.9	12.5	3.36	1.18	5.03	0.077	61.15	0.004182	0.22	77.8	209	0.18	12.76	[36]
epoxy	1500	0	0	0	4.10	3.73	34.7	12.	3.3	1.22	5.38	0.080	59.40	0.003	0.23	80.2	221	0.18	12.68	[36

resins								3	0					850						]
epoxy resins	1500	0	0	0	3.85	3.75	32.5	11.5	3.07	1.27	5.38	0.104	77.02	0.003333	0.29	80.6	255	0.19	12.64	[36]
Bamboo	1100	0	0	0	3.11	4.62	28.80	20.50	4.44	-	2.19	0.270	486	0.000584	-	58.7	301.9	0.93	-	[37]
d-glucose	1100	0	0	0	7.55	3.70	55.28	21.66	5.85	1.16	4.97	0.602	483.9	0.004504	0.15	68.4	367.7	0.57	-	[38]
shaddock peel	500	0	0	0	14.14	3.52	44.43	11.92	3.39	2.22	1.82	0.221	486	0.024600	0.17	44	157.0	0.60	-	[39]
shaddock peel	600	0	0	0	11.69	3.76	95.19	16.24	4.32	1.39	1.85	0.247	536	0.019824	0.18	70	336.7	0.49	-	[39]
shaddock peel	700	0	0	0	9.28	3.71	72.44	15.41	4.15	1.89	1.25	0.136	435	0.027564	0.13	65	161.2	0.53	-	[39]
commercial hard carbon	-	0	0	0	7.03	3.86	74.85	22.26	5.77	1.06	12.86	0.012	3.584	0.000273	0.16	77	116.2	0.29	9.31	[40]
commercial hard carbon	450	0	0	0	22.61	3.96	73.51	21.36	5.39	1.08	3.55	0.023	26.3	0.000080	0.25	68	288.1	0.41	9.00	[40]
rubber wood	900	0	0	0	14.36	3.89	58.19	18.76	4.82	0.85	1.74	0.122	280.47	0.000098	0.10	53.9	210.5	0.18	12.71	[41]
rubber wood	1000	0	0	0	12.32	3.86	59.01	19.08	4.94	0.78	1.77	0.122	275.22	0.000172	0.10	-	239.3	-	13.12	[41]
rubber wood	1200	0	0	0	11.48	3.75	67.55	19.12	5.10	0.74	3.49	0.028	32.07	0.000157	0.11	71.3	388.6	0.21	11.61	[41]
rubber wood	1400	0	0	0	9.15	3.40	67.97	21.54	6.34	0.77	6.02	0.019	12.62	0.000165	0.10	-	365.4	-	11.88	[41]
bituminous coal	1300	0	0	0	4.64	3.97	75.15	11.20	2.82	1.58	6.20	0.082	52.98	0.030589	0.12	49.5	135.8	-	10.27	[42]
bituminous coal	1300	0	0	0	11.62	3.79	72.47	21.51	5.67	1.18	13.36	0.073	21.91	0.010433	0.23	64.2	259.5	0.24	9.45	[42]
PET-based plastic waste	1000	0	0	0	16.86	3.79	77.67	18.47	4.87	1.34	3.63	0.186	205	0.000055	0.35	66	271.5	0.16	8.79	[43]
commercial hard carbon	-	0	0	0	3.79	3.85	64.66	19.40	5.04	1.12	2.56	0.0302	47.21	0.000021	0.15	88.3	293.2	0.24	10.75	[44]
commer	800	0	0	0	2.57	3.92	59.50	21.	5.5	1.39	5.53	0.027	19.60	0.000	0.05	90.8	303.9	0.24	10.33	[44

cial hard carbon								92	9			1		005						]
commercial hard carbon	1000	0	0	0	2.29	3.95	52.70	20.44	5.17	1.49	4.23	0.0122	11.54	0.000007	0.05	91.2	314.6	0.22	10.41	[44]
commercial hard carbon	1200	0	0	0	1.88	3.88	70.46	21.45	5.53	1.15	5.27	0.0114	8.65	0.000006	0.05	92.0	327.2	0.21	10.36	[44]
Peanut shell	1000	0	0	0	6.26	3.73	59.49	15.78	4.23	0.91	3.64	0.032	35.46	0.055278	0.16	53.3	171.3	0.31	10.90	[45]
sugarcane bagasse	1000	0	0	0	4.57	3.55	89.26	20.16	5.68	0.81	4.98	0.109	87.26	0.081133	0.09	27.3	81.5	0.42	11.03	[45]
glucose	1400	0	0	0	4.71	3.78	40.95	10.6	2.80	1.01	1.97	0.086	156.37	0.076725	1.15	77.7	128.0	0.22	11.30	[46]
pitch	1400	0	0	0	8.8	3.85	110.81	22.60	5.87	1.08	6.97	0.1595	97.69	0.032167	0.20	63.5	228.5	0.42	10.96	[47]
pitch	1400	0	0	0	5.8	3.85	109.62	22.96	5.96	1.13	7.18	0.0840	50.28	0.001478	0.27	77.6	285.8	0.29	10.44	[47]
pitch	1400	0	0	0	5.7	3.87	108.53	22.74	5.91	1.10	7.67	0.0713	41.45	0.005644	0.30	75.9	318.1	0.25	10.47	[47]
pitch	1400	0	0	0	7.3	3.85	108.06	22.37	5.81	1.06	4.86	0.0932	85.89	0.014200	0.23	71.3	243.6	0.28	10.72	[47]
vinasse	1100	0	0	0	5.67	3.67	33.0	15.0	4.09	1.05	2.20	0.26	473.67	0.003242	0.10	30.0	138.5	0.43	-	[48]
vinasse	900	0	0	0	5.08	3.70	30.0	15.0	4.05	0.93	4.59	0.02	17.42	0.002754	0.15	53.7	207.7	0.34	-	[48]
vinasse	1100	0	0	0	4.55	3.86	27.0	14.0	3.63	0.98	7.65	0.02	10.46	0.001073	0.31	61.1	311.0	0.36	9.36	[48]
vinasse	1300	0	0	0	3.87	3.73	28.0	16.0	4.29	1.07	3.63	0.04	44.02	0.000591	0.25	56.0	284.8	0.35	-	[48]
asphalt	1300	0	0	0	3.01	3.66	59.29	9.16	2.50	1.10	15.05	0.004	1.01	0.000139	0.33	62.29	159.6	0.30	-	[49]
acetylated pine	1300	0	0	0	12.33	3.98	48.7	12.3	3.09	1.81	2.09	0.126	241.1	0.004923	0.15	54.8	205.9	0.37	10.73	[50]
corn cob	1300	0	0	0	11.31	3.96	43.7	12.3	3.11	1.47	2.06	0.101	195.9	0.004330	0.14	61.5	279.2	0.27	10.52	[50]
pine	1300	0	0	0	8.19	3.90	43.6	13.5	3.46	1.76	2.70	0.145	214.8	0.004612	0.16	60.1	258.3	0.30	10.66	[50]
Polycarbonate	1200	0	0	0	7.75	3.77	33.36	12.69	3.37	1.56	8.69	0.004	1.85	0.001455	0.32	80.6	130.8	0.19	9.21	[51]

Polycarbonate	1400	0	0	0	7.34	3.75	39.28	13.47	3.59	1.46	8.05	0.004	1.77	0.003202	0.25	84.6	229.9	0.17	9.04	[51]
Polycarbonate	1600	0	0	0	6.52	3.72	45.56	13.69	3.68	1.35	12.56	0.006	1.89	0.005431	0.47	84.3	134.0	0.15	9.17	[51]
Polyethylene terephthalate	1200	0	0	0	12.16	3.81	37.58	12.10	3.18	1.42	6.29	0.002	1.0	0.003049	0.21	80.8	218.5	0.21	9.11	[51]
Polyethylene terephthalate	1400	0	0	0	8.02	3.80	40.35	13.78	3.63	1.35	7.65	0.002	1.0	0.001835	0.57	86.1	202.9	0.17	9.05	[51]
Polyethylene terephthalate	1600	0	0	0	7.3	3.63	44.90	14.21	3.92	1.01	7.37	0.005	2.66	0.003720	0.22	83.2	227.3	0.14	9.19	[51]
Artemia cyst shells	1300	0	0	0	6.0	3.77	66.70	20.76	5.51	1.03	8.7	0.00945	2.9	0.004758	0.18	76.0	181.6	0.28	9.12	[52]
resol	800	0	0	0	7.5	3.70	37.31	13.8	3.73	1.06	7.28	1.40	769	-	0.14	14.8	47.1	0.58	10.80	[53]
resol	800	0	0	0	8.3	4.00	37.30	13.4	3.35	1.88	5.78	1.14	789	-	0.12	17.1	78.2	0.64	10.39	[53]
resol	800	0	0	0	8.1	4.00	36.85	13.4	3.35	1.08	6.74	0.89	528	-	0.18	38.2	127.2	0.61	12.66	[53]
potassium gluconate	850	0	0	0	9.14	4.07	41.74	14.91	3.66	0.94	2.981	0.766	921.51	0.000047	0.10	66.3	301.8	-	6.81	[54]
Microcrystalline cellulose	1000	0	0	0	12.1	3.93	33.1	11.1	2.82	1.01	4.44	0.04	36	0.000001	0.07	34.3	108.9	0.47	-	[55]
Microcrystalline cellulose	1000	0	0	0	19.3	3.50	40.6	16.2	4.63	0.83	7.50	0.18	96	0.000001	0.13	37.9	207.1	0.78	-	[55]
Microcrystalline cellulose	1000	0	0	0	3.9	3.62	37.1	12.0	3.31	0.94	6.18	0.32	207	0.000002	0.05	21.5	79.9	0.59	-	[55]

Borassus flabellifer male inflorescences	1400	0	0	0	17.62	3.55	35.3	10.1	2.85	1.35	5.24	0.005	4.08	0.086500	0.20	76.4	375	0.29	-	[56]
Borassus flabellifer male inflorescences	1400	0	0	0	5.47	3.60	52.1	14.1	3.92	0.77	5.31	0.009	18.87	0.038225	0.26	86.6	413	0.18	-	[56]
Borassus flabellifer male inflorescences	1400	0	0	0	6.34	3.58	48.4	11.2	3.13	1.03	5.28	0.007	8.86	0.064900	0.24	83.4	405	0.45	-	[56]
Epoxy phenol novolac resin	1400	0	0	0	7.21	3.89	18.61	17.89	4.60	1.44	8.62	0.0073	3.37	0.000039	0.08	82.6	382.9	0.31	11.40	[57]
Epoxy phenol novolac resin	1600	0	0	0	6.06	3.82	26.17	18.38	4.81	1.34	8.17	0.0054	2.62	0.000022	0.07	83.8	424.9	0.22	11.24	[57]
Epoxy phenol novolac resin	1800	0	0	0	2.87	3.64	54.38	23.76	6.53	1.22	7.43	0.0027	1.43	0.000014	0.08	84.6	465.1	0.24	11.22	[57]
lignin	1400	0	0	0	8.79	3.87	22.69	12.33	3.19	1.13	9.08	0.0019	0.85	0.016156	0.32	78.09	213.1	0.22	12.08	[58]
Artemia cyst shells	1300	0	0	0.8	13.5	3.79	57.65	19.55	5.16	1.17	6.0	0.197	285.8	0.004748	0.22	68.4	253.1	0.30	8.85	[52]
Artemia cyst shells	1300	0	0	2.1	7.3	3.71	66.75	19.60	5.28	1.05	10.8	0.0145	6.9	0.004896	0.22	71.7	240.6	0.27	9.01	[52]
rosewood	1300	0	0	1.1	6.44	3.87	74.72	17.69	4.57	2.45	17.21	0.0131	3.0444	0.000063	0.07	89.8	307.9	0.28	6.95	[28]
poplar wood	1300	0	0	1.25	7.67	3.85	59.91	19.75	5.13	2.32	19.26	0.0215	4.4655	0.000243	0.07	86.1	321.9	0.23	6.93	[28]
azobe wood	1300	0	0	0.13	5.97	3.87	69.40	19.73	5.10	2.52	19.25	0.0124	2.5761	0.000054	0.08	71.8	319.9	0.25	6.97	[28]

fir wood	1300	0	0	0.37	6.65	3.81	73.00	19.37	5.08	1.74	17.40	0.0134	3.0806	0.000068	0.07	87.4	297.9	0.22	6.95	[28]
moso bamboo	1300	0	0	2.51	8.58	3.82	80.69	19.94	5.22	1.96	12.21	0.0029	0.9499	0.000365	0.08	87.3	331.4	0.22	6.92	[28]
Fir wood	1300	0	0	0.08	0.61	3.83	39.7	11.3	2.95	1.39	6.83	0.369	216	0.013856	0.24	72.4	249.5	0.28	13.13	[59]
Fir wood	1300	0	0	0.17	0.50	3.86	33.8	11.0	2.85	1.61	3.51	0.034	38.8	0.017364	0.12	66.6	241.8	0.34	13.08	[59]
Fir wood	1300	0	0	0.29	1.01	4.03	34.4	11.0	2.73	1.59	8.08	0.021	10.4	0.017436	0.20	71.2	228.4	0.30	13.11	[59]
Fir wood	1300	0	0	0.15	0	3.77	35.3	11.1	2.94	1.52	7.59	0.045	23.7	0.014776	0.14	66.4	201.9	0.24	13.05	[59]
Fir wood	1100	0	0	0.25	0.39	3.83	30.7	10.3	2.69	1.61	8.02	0.086	42.9	0.018756	0.19	68.9	189.1	0.18	-	[59]
Fir wood	800	0	0	0.49	2.47	3.91	29.5	9.2	2.35	1.82	3.61	0.032	35.5	0.022792	0.16	55.7	183.4	0.36	-	[59]
cornstarch	biological fermentation	0	0	0.50	2.98	3.86	28.43	11.82	3.06	1.76	1.75	0.037	41.91	0.000262	0.40	83.6	386	0.37	-	[60]
cornstarch	biological fermentation	0	0	0.62	5.51	4.01	61.55	21.91	5.46	1.81	-	-	8.13	0.000210	0.03	87.2	311	0.37	-	[60]
potato starch	biological fermentation	0	0	0.65	5.54	3.95	-	-	-	1.84	1.81	0.007	20.33	0.000241	0.19	-	300	0.45	-	[60]
carboxymethyl cellulose sodium	900	0	0	4.95	5.29	3.64	38.0	21.0	5.77	1.10	2.27	0.27	491	0.000019	0.03	51.16	150.4	0.81	12.26	[61]
carboxymethyl cellulose sodium	1050	0	0	2.35	5.65	3.88	15.6	14.0	3.61	1.05	2.74	0.26	396	0.000022	0.02	79.52	273.3	0.54	11.85	[61]
carboxymethyl cellulos	1200	0	0	1.84	4.92	3.77	31.5	15.5	4.11	0.98	2.61	0.23	341	0.000050	0.02	65.40	167.1	0.78	11.92	[61]

e sodium																				
resorcinol-formaldehyde resin	800	0	0	2.50	12.29	3.73	37.42	10.06	2.70	1.02	2.3	0.410	710.69	0.000023	0.04	97	239.5	-	10.01	[62]
resorcinol-formaldehyde resin	800	0	0	3.05	6.01	3.81	38.06	8.14	2.14	0.99	4.2	0.962	924.84	0.000035	0.07	65	288.4	-	10.17	[62]
resorcinol-formaldehyde resin	800	0	0	3.64	6.14	3.80	31.11	9.86	2.59	0.98	5.1	0.873	683.26	0.000031	0.11	88	324.2	-	9.97	[62]
resorcinol-formaldehyde resin	800	0	0	2.95	6.57	3.65	22.88	8.61	2.36	0.99	6.1	2.002	1303.77	0.000039	0.07	75	358.5	0.77	9.85	[62]
resorcinol-formaldehyde resin	800	0	0	1.74	13.53	3.69	37.95	8.14	2.21	0.97	7.6	0.955	504.53	0.000041	0.04	62	311.9	-	9.98	[62]
resorcinol-formaldehyde resin	800	0	0	7.01	6.90	3.36	28.74	9.78	2.91	0.99	7.7	1.593	827.16	0.000030	0.12	84	293.1	-	9.95	[62]
Polyaniline	800	0	0	0.71	6.05	3.50	37.45	14.06	4.02	-	33.73	0.156	18.5	-	-	36.6	-	0.42	-	[63]
Polyaniline	1000	0	0	0.82	7.94	3.55	35.28	13.69	3.86	-	28.76	0.151	21.0	0.006284	-	47.8	-	0.55	-	[63]
Polyaniline	1150	0	0	0.74	7.59	3.66	51.53	14.71	4.02	-	23.66	0.139	23.5	0.003816	0.50	51.6	254.1	0.40	14.52	[63]
phenol/formaldehyde	800	0	0	1.46	13.33	3.48	50.51	10.20	2.93	0.94	10.20	1.694	664	0.004267	0.20	33	270.4	0.74	-	[64]
phenol/formaldehyde	800	0	0	2.24	15.16	3.81	41.64	11.14	2.92	1.04	17.66	1.678	380	0.006445	0.10	31.8	188.2	-	-	[64]

waste cork	800	0	0	0.05	2.33	4.03	67.0	12.8	3.18	2.87	5.44	0.013	11.67	0.049033	0.13	62	293.5	0.62	9.01	[1]
dopamine hydrochloride	600	0	0	10.4	11.8	4.00	38.70	8.19	2.05	0.84	20.41	0.305	59.7	0.000167	0.12	89.4	448.7	0.80	-	[65]
resorcinol	1000	0	0	1.94	7.32	4.00	59.50	15.65	3.91	1.03	0.52	0.362	762	0.002568	0.13	71	294	0.39	7.07	[66]
lignite coal and sucrose	1200	0	0	0.51	4.29	3.45	60.61	21.78	6.31	1.59	5.585	0.2367	169.52	0.001566	0.34	59.9	179.1	0.36	10.00	[8]
lignite coal and sucrose	1200	0	0	0.64	4.71	3.88	33.74	14.06	3.62	1.90	13.49	0.0084	2.49	0.002418	0.39	80.0	119.1	0.36	-	[8]
lignite coal and sucrose	1200	0	0	0.67	4.44	3.82	33.77	14.23	3.73	1.87	17.615	0.0048	1.09	0.003899	0.42	81.8	184.3	0.29	-	[8]
lignite coal and sucrose	1200	0	0	0.73	3.67	3.77	33.75	13.06	3.46	1.85	14.32	0.0053	1.48	0.003395	0.50	82.9	257.6	0.39	-	[8]
lignite coal and sucrose	1200	0	0	0.76	3.04	3.61	43.52	14.53	4.02	1.63	10.22	0.013	4.93	0.001048	0.26	76.4	255.3	0.36	-	[8]
amino acids	700	0	0	1.64	7.73	3.70	27.70	11.43	3.09	1.02	2.29	0.0921	161.2	0.005597	0.12	55.2	229.6	0.27	-	[67]
amino acids	800	0	0	1.73	4.69	3.90	26.68	12.62	3.24	1.03	6.63	0.2954	189.7	0.005386	0.11	51.3	381.8	0.38	-	[67]
amino acids	900	0	0	1.81	9.14	4.10	32.67	12.32	3.00	1.05	2.53	0.1224	192.8	0.005621	0.11	53.8	260.8	0.26	-	[67]
Artemia cyst shell	850	0	0	1.3	18.5	3.37	-	-	-	0.85	5.45	2.03	1490	0.004624	0.17	38.0	325	0.69	-	[68]
glycine	790	0	0	8.45	5.76	4.40	47.23	18.07	4.11	0.99	2.44	0.44	722	0.008828	0.14	51.15	255.0	0.87	-	[69]
glycine	790	0	0	7.49	5.87	3.70	41.26	14.24	3.85	0.79	2.52	0.17	270	0.004472	0.11	38.37	105.6	0.59	-	[69]
polyacrylonitril	700	0	0	13.48	3.26	3.46	33.21	14.16	4.09	0.90	5.46	0.015	14.27	0.004959	0.09	41.6	122.7	0.35	-	[70]

e																				
1,3,5-triformylphloroglucinol	500	0	0	11.5	-	3.94	35.56	18.09	4.59	0.918	6.05	0.11	380.6	0.005180	-	53.00	-	-	-	[71]
1,3,6-triformylphloroglucinol	600	0	0	9.75	-	4.00	35.16	17.10	4.28	0.923	5.55	0.10	482.1	0.005058	0.06	49.45	229.7	0.50	-	[71]
1,3,7-triformylphloroglucinol	700	0	0	8.38	-	3.90	39.15	17.18	4.41	0.934	5.52	0.10	424.8	0.005187	-	49.11	-	-	-	[71]
polyacrylonitrile	650	0	0	14.88	3.65	3.70	45.71	17.39	4.70	1.04	7.11	0.0102	5.74	0.005514	0.05	46.57	135.3	0.64	-	[72]
Pristine Jute fibers	700	0	0	5.10	13.94	3.69	38.21	16.37	4.44	0.997	-	-	131.54	0.003106	0.06	45.6	201.4	0.48	-	[73]
Pristine Jute fibers	700	0	0	0.96	9.58	3.82	39.31	17.92	4.69	0.944	2.88	0.198	274.31	0.005902	-	43.8	182.3	0.43	-	[73]
Pristine Jute fibers	700	0	0	4.18	14.25	3.67	39.73	18.99	5.17	0.902	12.87	0.005	1.66	0.005852	0.12	50.3	197.5	0.48	-	[73]
gelatin	800	0	0	8.57	-	3.50	56.84	20.63	5.89	1.12	5.53	1.03	751.2	0.008438	0.13	22.4	193.3	0.65	-	[74]
water hyacinths	700	0	0	2.26	7.63	4.20	64.33	15.55	3.70	1.05	2.71	0.68	1005.4	0.026576	0.14	47.74	243.2	0.53	-	[75]
water hyacinths	900	0	0	1.25	6.50	4.00	59.61	14.27	3.57	1.00	2.48	0.48	774.3	0.029844	0.13	-	194.8	-	-	[75]
water hyacinths	1100	0	0	0.27	4.70	3.70	57.82	15.96	4.31	0.91	2.66	0.41	616.8	0.027052	0.13	-	170.7	-	-	[75]
zeolitic imidazolate framework	1000	0	0	2.88	3.29	3.80	106.78	60.86	16.02	0.88	10.11	0.5469	216.307	0.000073	0.19	77.1	239.3	0.53	-	[76]

zeolitic imidazolate framework	950	0	0	2.35	4.16	3.83	88.17	36.82	9.61	1.16	9.14	0.4671	204.329	0.000234	0.35	98	300.9	0.59	-	[76]
ZIF-8	900	0	0	3.9	11.3	3.53	60.61	11.36	3.22	1.20	0.40	0.14	1410.8	0.023184	0.11	68.28	118.9	0.64	10.06	[77]
ZIF-8	800	0	0	9.7	6.3	3.72	59.70	11.00	2.96	1.22	3.39	0.42	495.6	0.018008	0.08	60.04	222.5	-	9.25	[77]
ZIF-8	900	0	0	5.2	4.1	3.61	63.75	11.27	3.12	1.15	3.21	0.49	610.2	0.017396	0.10	60.60	229.3	0.45	8.83	[77]
ZIF-8	1000	0	0	1.0	14.2	3.59	64.73	11.20	3.12	1.05	2.54	0.60	944.6	0.015512	0.03	59.30	179.2	-	10.03	[77]
anthracite	1000	0	0	5.00	7.76	3.71	49.64	23.52	6.34	1.19	2.06	0.034	5.46	0.000022	0.04	64.7	212.6	0.33	11.92	[78]
anthracite	1200	0	0	2.23	6.81	3.94	45.04	25.59	6.49	1.09	2.58	0.040	7.07	0.000017	0.04	74.2	367.6	0.31	11.35	[78]
anthracite	1400	0	0	1.12	5.22	3.73	63.61	29.99	8.04	0.96	2.57	0.036	6.84	0.000020	0.33	77.5	258.2	0.25	11.68	[78]
Sorghum	1000	0	0	1.62	13.45	4.08	53.39	37.76	9.25	0.90	7.98	0.033	136.68	-	0.10	85.8	261.4	0.49	-	[79]
Sorghum	1200	0	0	1.65	16.68	3.75	54.29	30.47	8.13	0.98	6.87	0.037	96.43	0.000043	0.15	91.0	320.6	0.51	4.37	[79]
Sorghum	1400	0	0	1.33	15.13	3.45	75.56	33.75	9.78	0.86	6.04	0.058	194.32	-	0.06	80.2	179.2	0.37	-	[79]
Sorghum	1600	0	0	1.24	13.46	3.38	85.94	39.37	11.65	0.69	5.63	0.059	219.79	-	0.09	80.0	178.3	0.37	-	[79]
citric acid	800	0	0	15.17	4.59	3.36	39.84	26.31	7.83	0.97	10.84	0.237	87.5	0.006746	0.09	33.2	175.1	0.61	10.62	[80]
Mango-peels	1000	0	0	1.30	10.31	3.80	55.68	25.67	6.76	0.63	8.63	2.331	1079.88	0.006706	0.51	40.1	280	0.42	11.14	[81]
Polydopamine	800	0	0	5.71	6.41	3.90	46.74	23.90	6.13	0.97	6.70	0.31	185	0.007753	0.09	31.3	220.3	0.64	-	[82]
Polydopamine	800	0	0	5.24	6.19	3.80	46.76	24.92	6.56	0.94	9.69	1.64	677	0.00838	0.11	23.3	218.0	0.61	-	[82]
carboxylated chitosan and phytic acid	800	0	0	3.01	2.49	3.58	77.52	15.15	4.23	0.97	2.26	0.854	1511.4	0.007175	0.04	42.7	131.9	-	-	[83]
leonardite humic	900	0	0	1.1	6.9	3.99	46.3	14.9	3.73	1.67	-	-	6.36	0.002357	0.18	59	224.9	0.28	-	[84]

acid																				
leonardite humic acid	1100	0	0	0.8	6.7	3.90	46.8	16.0	4.10	1.61	-	-	1	0.002209	0.21	58	238.3	0.28	-	[84]
leonardite humic acid	1300	0	0	0.4	6.6	3.72	47.1	17.0	4.57	1.52	-	-	3.82	0.001653	0.26	67	282.3	0.21	-	[84]
leonardite humic acid	1500	0	0	0.3	3.2	3.68	49.2	17.6	4.78	1.12	-	-	3.21	0.001289	0.30	73	300.5	0.20	-	[84]
leonardite humic acid	1600	0	0	0.2	2.6	3.62	51.2	18.0	4.97	1.09	-	-	1.06	0.002587	0.27	75	239.1	0.17	-	[84]
biowaste	700	0	0	3.9	3.6	3.75	49.53	21.65	5.77	1.72	2.37	0.194	326.9	0.002400	0.28	53.6	81.9	0.49	-	[85]
biowaste	700	0	0	4.5	5.6	3.72	77.35	21.37	5.74	1.76	2.92	0.155	211.6	-	0.73	52.3	98.0	0.52	-	[85]
biowaste	700	0	0	4.0	7.8	3.70	53.56	20.49	5.53	2.01	6.59	0.177	107.2	0.015200	0.91	50.5	140.9	0.54	-	[85]
biowaste	1000	0	0	2.0	1.7	3.67	59.91	23.55	6.42	1.20	15.18	0.103	27.1	0.002000	0.86	67.2	140.8	0.35	-	[85]
biowaste	1000	0	0	1.7	4.8	3.69	62.87	22.56	6.11	1.22	11.97	0.067	22.4	0.003600	0.95	65.1	107.7	0.38	-	[85]
biowaste	1000	0	0	3.2	9.7	3.72	69.83	20.35	5.47	1.41	4.51	0.230	203.9	0.036800	2.22	51.7	2.4	0.61	-	[85]
peanut shell	1100	0	0	0.7	10.6	4.08	53.54	20.34	4.99	0.98	66.34	0.464	29.8	0.016450	0.17	94.1	266.0	0.28	-	[86]
Corncob	1100	0	0	0.5	10.3	4.06	53.52	19.98	4.92	1.01	2.49	0.139	222.6	0.016375	0.15	94.0	218.6	0.27	-	[86]
pine pollen	900	0	0	0.81	8.03	4.10	62.40	17.78	4.34	1.07	4.83	0.207	171.54	0.004345	0.23	59.8	219.5	0.31	10.63	[87]
hornet's nest	1000	0	0	3.22	7.48	3.94	66.86	17.73	4.50	0.89	4.99	0.187	150.13	0.037493	0.22	56.8	176.7	0.25	-	[88]
hornet's nest	1200	0	0	1.52	6.93	3.91	53.42	17.95	4.59	0.92	5.07	0.115	90.85	0.023205	0.24	67.4	216.8	0.23	-	[88]
hornet's nest	1400	0	0	0.7	4.94	3.83	56.67	19.20	5.01	1.01	6.97	0.090	51.84	0.023122	0.30	68.6	221.9	0.23	-	[88]
hornet's nest	1000	0	0	2.47	14.47	3.93	60.24	17.84	4.54	-	4.49	0.155	137.85	0.054371	0.29	58.2	150.1	0.24	-	[88]
hornet's	1200	0	0	1.8	9.02	3.82	60.82	17.	4.7	-	5.22	0.152	116.5	0.030	0.31	62.2	179.9	0.22	-	[88

nest				2				97	0				9	808						]
hornet's nest	1400	0	0	0.94	9.73	3.74	62.79	19.30	5.16	-	5.54	0.138	99.88	0.025776	0.32	62.1	205.9	0.19	-	[88]
gelatin	1000	0	0	3.92	3.28	4.96	44.4	18.2	3.67	0.99	2.17	0.210	387.3	0.0000043	0.06	61.6	337.4	0.27	9.52	[89]
gelatin	1200	0	0	1.30	2.81	4.23	45.3	19.5	4.61	0.97	2.23	0.189	338.5	0.0000083	0.05	73.8	395.4	0.21	8.48	[89]
gelatin	1400	0	0	0.52	2.12	3.85	46.3	22.1	5.74	0.95	2.37	0.170	286.8	0.0000089	0.06	74.4	312.3	0.20	9.04	[89]
lignin	1300	0	0	0.8	14.4	3.75	38.2	15.6	4.16	1.29	5.55	0.007	4.9	0.004890	0.23	70.1	237.5	0.13	9.56	[90]
Jackfruit	1000	0	0	1.89	7.45	3.76	51.73	15.74	4.19	0.98	19.31	0.00347	1.52	0.010425	0.14	57.0	141.4	0.32	-	[91]
Jackfruit	1100	0	0	1.53	7.46	3.88	48.54	15.08	3.89	0.99	17.03	0.00395	1.63	0.007100	0.16	62.3	151.9	0.28	-	[91]
Jackfruit	1200	0	0	1.41	7.15	3.86	56.20	17.57	4.55	0.99	12.97	0.00553	2.67	0.005050	0.22	66.2	158.7	0.26	8.82	[91]
Jackfruit	1300	0	0	1.38	6.19	3.85	64.83	17.86	4.64	1.00	8.27	0.00559	3.51	0.010200	0.14	67.5	141.8	0.34	-	[91]
cocklebur fruit	900	0	0	1.96	4.05	3.80	52.29	18.20	4.79	2.33	3.22	0.075	93.83	0.000238	0.06	50.6	180.0	0.44	-	[92]
cocklebur fruit	1000	0	0	1.49	5.91	3.79	55.27	18.15	4.79	2.04	3.76	0.069	73.38	0.000198	0.06	62.4	210.6	0.40	-	[92]
cocklebur fruit	1100	0	0	0.68	5.17	3.76	52.28	19.63	5.22	1.79	3.60	0.058	64.15	0.000185	0.08	69.1	235.5	0.38	11.49	[92]
agar	750	0	0	2.2	-	3.67	64.62	15.50	4.22	1.73	3.22	2.3479	2914	0.001727	0.20	70.7	402.6	0.88	11.21	[93]
agar	900	0	0	1.8	-	3.77	83.04	18.03	4.78	1.77	3.06	3.0531	3991	0.001766	0.23	74.9	438.1	0.84	10.97	[93]
agar	1050	0	0	1.1	-	3.59	58.09	14.32	3.99	1.41	2.92	1.7209	2356	0.005584	0.14	68.1	163.1	0.91	11.51	[93]
banana peel	900	0	0	0.45	8.00	3.95	45.2	17.4	4.41	0.987	2.16	0.913	1692.44	0.012464	-	89.8	-	0.82	7.89	[94]
banana peel	900	0	0	2.00	3.00	3.93	48.3	17.8	4.53	-	2.18	0.448	821.55	0.057344	-	82.4	-	0.35	-	[94]
banana peel	900	0	0	3.39	3.38	3.91	49.6	18.2	4.65	1.037	2.33	0.145	249.58	0.065056	-	84.6	-	0.23	-	[94]
banana peel	900	0	0	6.51	3.54	3.87	51.3	18.5	4.78	-	5.42	0.020	14.69	0.091024	-	84.5	-	0.11	-	[94]
banana peel	900	0	0	9.40	3.76	3.85	52.4	18.7	4.86	1.032	7.13	0.016	8.97	0.104368	0.80	86.8	265.0	0.11	-	[94]

banana peel	900	0	0	9.92	3.77	3.80	52.6	18.9	4.97	-	7.58	0.016	8.65	0.102688	-	85.3	-	0.10	-	[94]
banana peel	900	0	0	10.57	3.51	3.62	58.8	23.8	6.57	0.979	7.98	0.009	4.31	0.071552	-	81.6	-	0.09	-	[94]
cucumber stem	900	0	0	2.79	11.18	3.87	16.3	7.5	1.94	1.82	5.02	0.072	147.16	0.000260	0.18	63.0	257.9	0.59	13.39	[95]
cucumber stem	1000	0	0	2.14	10.81	3.83	17.6	8.0	2.09	1.69	4.84	0.110	253.46	0.000312	0.16	65.4	232.1	0.54	13.25	[95]
cucumber stem	1100	0	0	1.25	8.48	3.80	19.8	9.7	2.55	1.65	4.89	0.114	312.63	0.000166	0.20	62.5	228.5	0.60	13.66	[95]
cucumber stem	1100	0	0	0.99	4.9	3.69	18.5	6.9	1.87	1.05	3.82	1.630	1988.90	0.000325	0.19	37.6	332.7	0.74	11.34	[95]
peanut skin	800	0	0	0.45	4.23	3.70	44.72	8.8	2.38	1.57	2.65	1.28	1930	0.000193	0.15	33.0	278.9	0.67	-	[96]
peanut skin	800	0	0	0.65	3.41	3.70	42.76	7.9	2.14	1.61	2.70	1.69	2500	0.000341	0.14	33.9	383.1	0.69	-	[96]
peanut skin	800	0	0	0.26	3.79	3.90	43.13	7.8	2.00	1.89	2.35	0.84	1430	0.000274	0.14	30.7	198.5	0.55	-	[96]
peanut skin	800	0	0	0.54	2.90	3.90	47.13	6.9	1.77	1.94	2.76	1.09	1580	0.000159	0.10	29.3	208.7	0.55	-	[96]
palm leaves	800	0	0	6.54	4.42	3.89	46.89	17.52	4.50	1.00	26.73	0.137	20.47	-	0.15	46.0	232.2	0.39	-	[97]
palm leaves	900	0	0	5.26	5.69	3.83	53.84	17.28	4.51	1.07	40.83	0.148	14.51	0.000140	0.19	45.0	282.8	0.37	-	[97]
palm leaves	1000	0	0	4.60	5.55	3.77	52.80	16.73	4.44	1.05	38.77	0.060	6.21	-	0.32	55.8	290.4	0.27	9.42	[97]
palm leaves	1100	0	0	2.78	5.55	3.99	60.46	19.34	4.85	1.03	36.56	0.127	14.15	0.002060	0.35	53.0	246.9	0.25	-	[97]
cherry petals	1000	0	0	1.4	12.0	3.96	49.08	15.08	3.81	1.03	18.19	0.008	1.86	0.088525	0.20	67.2	236.4	0.23	-	[98]
Ganoderma lucidum spore	900	0	0	2.97	8.52	3.68	63.46	17.38	4.72	0.99	2.49	0.205	329.6	-	0.09	22.9	82.2	0.42	-	[99]
Ganoderma lucidum spore	1100	0	0	1.53	6.89	3.79	52.55	19.51	5.15	1.03	6.99	0.035	20.3	-	0.31	45.7	153.0	0.26	-	[99]
Ganoderma lucidum spore	1300	0	0	0.86	5.66	3.75	60.04	18.58	4.95	1.01	9.19	0.041	17.9	-	0.28	50.4	199.6	0.22	-	[99]
Ganoderma	1400	0	0	0.80	5.30	3.71	60.01	21.77	5.87	1.09	9.14	0.034	14.7	0.003636	0.41	61.5	246.8	0.21	-	[99]

lucidum spore																				
Ganoderma lucidum spore	1500	0	0	0.76	4.69	3.65	59.85	24.25	6.64	1.15	11.97	0.038	12.7	-	0.39	55.3	174.7	0.20	-	[99]
phenol-aldehyde	1200	0	0	2.24	3.30	4.03	45.24	17.77	4.41	0.94	20.10	0.583	116	0.083778	0.11	38.4	165.5	0.31	7.19	[100]
phenol-aldehyde	1400	0	0	1.31	3.07	3.78	43.30	22.73	6.01	1.02	47.04	1.153	98	0.063011	0.26	52.5	297.1	0.30	7.51	[100]
phenol-aldehyde	1600	0	0	0.68	2.37	3.68	67.32	25.61	6.96	1.21	74.28	2.005	108	0.083633	0.11	29.5	118.3	0.42	8.74	[100]
longan shell	600	0	0	0.76	5.08	3.77	34.97	13.06	3.46	1.15	1.08	0.658	2433.6	0.000001	0.03	87.9	162.1	-	-	[101]
longan shell	700	0	0	1.05	4.61	3.71	31.82	12.04	3.25	1.11	1.16	0.733	2520.1	0.00000075	0.02	85.7	176.4	-	-	[101]
longan shell	800	0	0	1.19	4.79	3.77	29.91	11.64	3.09	1.09	0.32	0.237	2989.9	0.00000024	0.05	80.0	338.0	0.89	-	[101]
longan shell	850	0	0	0.86	5.16	3.84	41.57	14.30	3.72	1.06	1.20	0.579	1927.4	0.00000082	0.03	93.7	168.9	-	-	[101]
lignin and divinyl benzene	1400	0	0	0.88	7.63	3.80	31.34	13.98	3.68	0.87	6.16	0.0084	5.46	0.019833	0.31	78.19	129.6	0.22	12.13	[58]
lignin and divinyl benzene	1400	0	0	0.68	7.89	3.85	24.41	13.66	3.55	1.10	7.67	0.0015	0.78	0.021933	0.31	80.47	140.5	0.23	-	[58]
lignin and divinyl benzene	1400	0	0	1.43	8.26	3.87	23.82	12.87	3.33	1.09	9.03	0.0019	0.85	0.018611	0.28	79.07	178.6	0.22	-	[58]
lignin and divinyl benzene	1400	0	0	0.51	8.83	3.90	21.70	11.71	3.00	1.14	4.31	0.0037	3.52	0.015367	0.24	77.46	165.3	0.23	-	[58]
glucose	1400	0.06	0	0	5.18	3.80	40.64	10.8	2.84	1.03	1.99	0.049	81.26	0.024375	1.22	90.7	199.7	0.19	-	[46]

glucose	1400	0.26	0	0	5.46	3.82	40.64	10.8	2.83	1.05	2.10	0.028	44.31	0.031675	1.08	92.2	242.4	0.17	10.92	[46]
glucose	1400	0.32	0	0	5.78	3.83	40.75	10.0	2.61	1.06	2.71	0.080	88.10	0.030350	1.13	90.2	111.3	0.22	-	[46]
coffee grounds	1000	1.02	0	0	9.89	3.68	64.90	17.84	4.85	0.90	3.61	0.052	57.79	0.063433	0.24	49.9	153.6	0.26	11.06	[45]
lignin	1300	0.6	0	2.2	6.3	3.58	62.7	18.4	5.14	1.13	7.53	0.027	14.4	0.001611	0.19	79.1	264.5	0.14	9.16	[90]
phytic acid	800	6.37	0	25.00	14.64	4.70	51.62	11.08	2.36	1.08	3.12	0.340	435.34	0.006235	0.18	38.5	205.4	0.77	15.50	[102]
banana peel	800	0.03	0	1.93	6.23	3.97	21.2	15.6	3.93	1.28	7.15	0.059	33.0	0.001941	0.16	63	294.9	0.33	-	[103]
banana peel	1100	0.05	0	0.89	4.47	3.91	41.5	15.9	4.07	1.10	10.78	0.052	19.3	0.001539	0.19	70	311.1	0.31	-	[103]
banana peel	1400	0.02	0	0.34	4.27	3.84	73.0	20.4	5.31	1.08	12.97	0.047	14.5	0.001947	0.25	73	303.7	0.20	-	[103]
banana peel	800	0.04	0	2.02	7.05	3.99	24.3	15.9	3.98	1.27	4.33	0.23	217.3	0.001833	0.21	61	273.6	0.40	-	[103]
banana peel	1100	0.05	0	2.04	5.40	3.92	43.6	16.2	4.13	1.09	5.81	0.19	130.8	0.001125	0.19	68	322.3	0.37	-	[103]
banana peel	1400	0.03	0	0.86	4.50	3.86	74.3	21.2	5.49	1.06	9.02	0.14	62.1	0.001876	0.22	71	296.2	0.24	-	[103]
coal pitch	900	2.86	0	0	10.15	3.67	38.54	23.10	6.29	1.33	5.26	0.136	103.3	-	0.10	66	265.6	0.66	-	[15]
coal pitch	900	2.82	0	0	11.37	3.64	42.00	25.24	6.93	1.32	6.64	0.066	39.8	0.000599	0.08	66	199.3	-	-	[15]
polyacrylonitrile	1000	1.4	0	0	-	3.83	41.96	21.84	5.70	1.12	1.58	0.02	50.628	0.002472	0.14	55.7	266.2	0.36	13.46	[104]
phenolic resin	800	0.73	0	0	9.24	3.94	44.54	24.14	6.13	0.957	2.52	0.1921	305.051	0.000037	0.04	52.10	115.2	0.42	9.69	[19]
phenolic resin	800	1.22	0	0	10.98	4.11	51.90	24.08	5.86	0.971	3.00	0.2160	287.820	0.000028	0.07	67.95	293.5	0.63	9.36	[19]
phenolic resin	800	1.69	0	0	11.11	4.16	62.58	24.07	5.79	0.976	7.72	0.0893	46.269	0.000026	0.13	58.10	206.3	0.60	10.12	[19]
original asphalt	1300	0.71	0	0	3.46	3.82	48.97	9.53	2.49	1.23	10.74	0.003	1.07	0.000317	0.25	72.68	245.3	0.37	8.68	[105]
Subbituminous coal	1000	1.83	0	0	9.02	3.73	18.1	14.3	3.83	2.7	5.65	0.070	49.6	0.003937	0.08	64	88.5	0.50	8.47	[106]

agar	750	0.2	0	0	-	3.79	62.77	20.77	5.48	1.67	7.24	1.6614	917	0.007392	-	31.6	277	0.79	-	[107]
agar	750	1.03	0	0	-	3.91	52.49	18.13	4.64	2.04	3.86	0.6814	706	0.006791	0.12	42.1	394	0.80	8.37	[107]
agar	750	1.35	0	0	-	3.96	56.14	11.18	2.82	1.56	2.94	0.2793	380	0.007241	-	28.0	198	0.71	-	[107]
agar	750	1.54	0	0	-	3.99	35.91	18.08	4.53	1.69	6.15	0.3222	209	0.006481	-	37.7	128	0.48	-	[107]
Triphenylphosphine	500	4.0	0	0	10.3	3.71	50.56	25.43	6.85	-	36.77	1.869	203.33	0.000025	0.01	74.1	-	0.73	-	[108]
Subbituminous coal	1000	0.89	0	0	6.34	3.71	47.93	24.91	6.71	1.07	4.46	0.404	362.2	0.005772	0.21	48.1	188.0	0.77	8.66	[109]
sucrose	800	2.04	0	0	10.89	3.68	52.29	22.40	6.09	1.43	13.35	0.23	68.9	0.000673	0.09	-	285.3	0.79	-	[110]
melamine	800	14.36	0	19.25	29.71	3.99	92.50	18.98	4.76	1.13	15.75	0.015	3.701	0.003160	0.15	38.5	354.4	0.81	10.99	[111]
Vine shoots	800	0.06	0.17	1.47	4.06	3.85	28.75	8.87	2.30	2.44	4.86	0.100	82	-	0.05	56.12	159.7	0.35	-	[112]
Vine shoots	1000	0.06	0.07	1.02	3.38	3.81	38.22	8.74	2.29	2.07	17.11	0.073	17	0.0000038	0.08	70.57	251.7	0.23	7.36	[112]
Vine shoots	1200	0.1	0.16	0.52	4.42	3.79	43.03	9.13	2.41	1.90	19.74	0.084	17	-	0.09	79.44	240.1	0.16	-	[112]
Vine shoots	800	0.09	0.14	1.91	3.48	3.83	30.68	8.72	2.28	2.83	3.81	0.132	139	-	0.06	60.41	235.2	0.29	-	[112]
Vine shoots	1000	0.1	0.18	1.1	3.57	3.78	36.12	9.34	2.47	1.74	16.07	0.092	23	0.0000127	0.10	71.53	272.8	0.22	7.32	[112]
Vine shoots	1200	0.15	0.25	0.64	4.39	3.79	48.26	9.16	2.42	1.91	20.60	0.067	13	-	0.11	76.32	303.8	0.18	-	[112]
Vine shoots	1000	0.04	0.11	1.21	4.62	3.80	34.70	9.24	2.43	2.11	8.11	0.223	110	0.0000227	0.08	53.28	260.9	0.29	7.39	[112]
PAN/Lignin	800	3.77	0.1	8.68	13.91	3.72	58.69	18.78	5.05	0.554	10.74	0.019	7.076	0.0007715	0.09	78.86	220.8	0.73	-	[113]
Polydopamine	800	3.08	0	5.52	10.98	4.00	41.64	24.86	6.22	1.03	7.66	0.36	188	0.006769	0.07	43.2	215.7	0.72	-	[82]
Polydopamine	800	5.19	0	6.05	14.13	4.10	48.71	21.62	5.27	1.10	4.60	0.55	478	0.006349	0.09	46.9	267.5	0.79	-	[82]
phytic acid cross-linked polyaniline	800	2.3	0	5.6	10.0	3.72	15.45	7.86	2.11	1.18	37.59	0.303	32.24	0.000579	0.10	50.4	182.8	0.56	-	[114]

phytic acid cross-linked polyaniline	900	1.7	0	7.8	4.5	3.72	17.51	7.73	2.08	1.07	31.92	0.300	37.59	0.000656	0.14	52.4	200.4	0.39	-	[114]
phytic acid cross-linked polyaniline	1000	1.8	0	8.1	8.9	3.74	23.75	8.62	2.30	1.07	36.96	0.284	30.96	0.000995	0.14	53.9	196.3	0.32	-	[114]
phytic acid cross-linked polyaniline	800	1.7	0	3.9	9.3	3.65	15.77	7.91	2.17	1.26	15.50	0.529	136.56	0.000483	0.10	47.6	190.2	0.55	-	[114]
phytic acid cross-linked polyaniline	900	0.2	1.0	6.5	7.4	3.63	17.75	8.35	2.30	1.24	24.32	0.548	90.12	0.000708	0.02	46.6	187.8	0.50	-	[114]
phytic acid cross-linked polyaniline	1000	1.8	0	4.4	8.8	3.70	19.98	8.02	2.17	1.10	28.67	0.433	60.42	0.000856	0.13	49.0	194.6	0.46	-	[114]
phytic acid cross-linked polyaniline	800	1.7	0	3.0	6.8	3.70	14.55	7.89	2.13	1.21	28.72	0.254	35.38	0.000505	0.11	50.5	207.5	0.57	-	[114]
phytic acid cross-linked polyaniline	900	0.8	0.3	4.4	6.9	3.69	17.55	7.97	2.16	1.17	30.89	0.341	44.16	0.000732	0.14	49.8	210.8	0.53	-	[114]
phytic acid	1000	1.7	0	2.2	7.1	3.72	20.95	8.26	2.22	1.14	37.18	0.305	32.81	0.000969	0.13	52.5	189.1	0.37	-	[114]

cross-linked polyaniline																				
carboxylated chitosan	800	1.64	0	8.46	5.85	3.70	64.71	14.89	4.02	1.12	3.04	2.177	2861.3	0.004664	0.04	61.9	233.3	0.93	-	[83]
Ganoderma lucidum	800	0.81	0.20	1.81	5.14	3.83	15.98	12.11	3.16	0.92	10.78	0.62	230	-	0.13	66.7	188.9	0.43	-	[115]
Ganoderma lucidum	900	0.47	0.20	2.25	4.06	3.92	18.58	12.87	3.28	1.00	5.55	0.47	339	0.0000004	0.07	73	251.6	0.39	-	[115]
Ganoderma lucidum	1000	0.55	0.17	1.79	7.43	3.81	19.69	13.11	3.44	1.04	6.30	0.37	235	-	0.08	75.4	229.0	0.33	-	[115]
asphalt	900	2.48	0	2.75	9.6	4.03	38.49	8.23	2.04	0.82	-	-	9.03	0.000123	0.19	34.45	94.6	0.38	-	[49]
asphalt	1100	1.12	0	1.97	5.24	3.93	47.78	8.88	2.26	1.02	-	-	2.13	0.000361	0.23	68.27	251.9	0.28	-	[49]
asphalt	1300	0.68	0	2.41	3.16	3.90	50.78	9.11	2.34	1.14	18.69	0.012	2.50	0.000317	0.21	71.07	266.7	0.21	-	[49]
asphalt	1300	0.55	0	1.36	5.00	3.96	45.31	8.72	2.20	1.17	-	-	12.56	0.000258	0.15	55.24	108.3	0.26	-	[49]
Polyvinyl Alcohol	800	3.89	0	0.92	-	3.98	52.93	17.79	4.47	1.01	2.73	0.138	203.2	0.002083	0.05	75	253.4	0.42	8.45	[116]
PAN/Lignin	800	0	0.46	6.14	14.87	3.55	55.88	20.45	5.76	0.619	2.10	0.155	294.541	0.0013355	0.07	48.5	143.9	0.49	-	[113]
Vine shoots	1000	0	0.05	0.91	4.15	3.81	36.53	9.55	2.51	1.93	8.44	0.264	125	0.0000248	0.06	57.66	214.4	0.30	7.32	[112]
apricot shells	900	0	0.84	0.87	6.67	3.92	46.6	11.8	3.01	2.08	3.39	0.0023	2.7	0.001961	0.18	66	286	-	-	[117]
apricot shells	1100	0	0.34	0.54	1.45	3.93	50.2	12.2	3.10	1.82	3.25	0.0375	46.1	0.002040	0.23	65	306	-	-	[117]
apricot shells	1300	0	0.23	0.34	0.97	3.87	51.6	12.4	3.20	1.56	7.27	0.0227	12.5	0.001298	0.40	69	363	-	-	[117]
apricot shells	1500	0	0.16	0.21	0.80	3.79	52.4	12.7	3.35	1.39	5.96	0.0168	11.3	0.001203	0.48	71	343	-	-	[117]
apricot shells	900	0	0.16	0.99	4.59	3.92	50.3	12.7	3.24	1.89	3.87	0.027	27.9	0.002572	0.24	73	280.00	0.41	-	[117]
apricot shells	1100	0	0.12	0.76	0.27	3.88	58.7	12.0	3.09	1.67	3.08	0.044	56.7	0.001577	0.26	77	323.89	0.41	-	[117]

apricot shells	1300	0	0.08	0.46	0.12	3.82	61.9	12.2	3.19	1.45	6.27	0.021	13.4	0.001147	0.40	79	364.88	0.25	-	[117]
apricot shells	1500	0	0.05	0.28	0.06	3.72	65.1	12.6	3.39	1.35	5.36	0.017	12.4	0.002158	0.35	80	323.89	0.18	-	[117]
starch	900	0	0.03	0.12	1.68	3.75	47.96	11.94	3.18	1.359	-	-	-	0.000525	0.28	80.0	155.5	0.18	-	[118]
starch	1100	0	0.03	0.37	0.76	3.74	43.25	12.08	3.23	1.283	-	-	-	0.000426	0.26	85.2	198.9	0.24	-	[118]
starch	1300	0	0.03	0.35	0.57	3.73	51.76	13.87	3.72	1.243	-	-	-	0.000618	0.29	86.5	249	0.20	-	[118]
starch	1500	0	0.02	0.10	0.46	3.68	53.92	14.08	3.83	1.232	-	-	-	0.000393	0.36	90.5	271	0.26	-	[118]
starch	1700	0	0.03	0.05	0.32	3.51	54.68	14.71	4.19	1.042	-	-	-	0.000344	0.40	93.9	168.4	0.19	-	[118]
polyacrylonitrile	600	0	10.82	14.84	4.09	3.56	36.24	16.25	4.64	1.13	24.42	0.249	90.61	0.002998	-	78.13	-	1.28	-	[70]
polyacrylonitrile	700	0	4.73	14.43	8.60	3.58	49.83	13.42	3.75	1.06	5.76	0.220	347.88	0.004562	0.11	60.5	406.3	0.83	-	[70]
polyacrylonitrile	800	0	1.79	11.81	4.91	3.52	33.12	25.75	7.32	1.01	12.70	0.511	435.13	0.005288	0.07	52.2	214.4	0.85	-	[70]
D–(+)–glucose	1100	0	0.93	-	3.53	3.59	-	-	-	1.02	2.67	0.163	244	0.000113	0.11	73	232.7	0.35	-	[13]
cotton roll	700	0	3.35	0	9.91	3.81	47.13	29.13	7.65	1.00	2.12	0.163	307.6	0.000047	0.21	62.6	-	0.57	-	[16]
Tangerine peel	800	0	0.86	7.17	0	3.96	48.42	23.45	5.92	0.95	1.75	0.558	1276	0.032188	0.10	14.07	255.7	0.37	10.74	[119]
polyacrylonitrile	650	0	6.10	13.27	6.34	3.80	45.60	14.06	3.70	1.06	5.19	0.0141	10.86	0.005964	0.12	52.80	358.1	0.82	-	[72]
polyacrylonitrile	650	0	7.67	16.04	3.64	4.10	41.15	21.16	5.16	1.12	4.43	0.0271	24.49	0.004044	0.11	64.58	440.5	0.87	-	[72]
coal tar pitch	600	0	12.47	0.82	2.54	3.58	41.50	27.08	7.56	-	4.30	0.011	9.8	0.000175	0.26	73.5	506.3	0.39	11.08	[120]
coal tar pitch	800	0	8.50	1.02	1.74	3.68	41.70	24.27	6.60	-	2.47	0.049	79.7	0.0000658	0.30	65.2	409.8	0.39	10.46	[120]
coal tar pitch	1000	0	3.38	0.98	0.90	3.80	48.77	21.25	5.59	-	2.29	0.138	241	0.0000444	0.09	44.5	169.9	0.46	10.58	[120]
Bacterial	800	0	7.98	0	11.67	4.10	41.39	26.91	6.56	1.05	0.89	0.149	669	0.000019	0.05	68.18	346.0	0.83	-	[17]

cellulose																				
corn starch	1100	0	1.44	1.08	5.39	3.81	52.41	28.76	7.55	1.03	6.25	0.358	563.45	-	0.26	84.41	268.7	0.50	-	[121]
corn starch	1150	0	1.7	1.16	9.22	3.86	54.74	25.45	6.59	1.21	3.99	0.369	683.85	0.0000139	0.21	70.26	295.8	0.75	-	[121]
corn starch	1190	0	1.11	0.78	6.07	3.76	59.09	23.71	6.31	0.94	3.64	0.163	296.17	-	0.15	66.37	253.7	0.47	-	[121]
walnut shell	600	0	1.4	1.1	9.3	4.01	45.14	21.06	5.25	0.90	-	-	284	0.003855	0.14	-	237.7	-	-	[122]
walnut shell	800	0	1.2	1.3	11.1	3.99	43.06	17.16	4.30	1.07	-	-	473	0.004822	0.13	-	241.9	-	-	[122]
walnut shell	1000	0	2.1	1.2	5.5	4.08	45.25	20.56	5.04	1.23	-	-	1386	0.004156	0.16	68.9	354.9	-	-	[122]
walnut shell	1200	0	1.8	1.3	6.8	4.06	51.98	20.97	5.17	1.17	-	-	1103	0.005461	0.16	-	316.9	-	-	[122]
dithiooxamide	500	0	2.17	34.40	0	3.60	-	-	-	1.26	7.5	0.40	253.4	0.005933	-	44	149.7	0.66	-	[123]
dithiooxamide	600	0	1.50	34.22	0	3.60	-	-	-	1.42	10.5	0.76	317.6	0.007314	-	41	185.9	0.66	-	[123]
dithiooxamide	700	0	1.07	30.29	0	3.60	-	-	-	1.45	12.4	0.96	511.1	0.006601	0.55	47	304.2	0.67	-	[123]
4,6-diamino-2(1 h)-pyrimidinethione	800	0	0.61	22.48	4.91	3.38	28.24	38.39	11.36	1.18	9.80	0.0103	4.23	0.000016	0.06	55.53	306.0	0.76	8.90	[124]
4,6-diamino-2(2 h)-pyrimidinethione	1000	0	1.44	7.73	4.07	3.41	36.73	32.13	9.42	1.07	6.09	0.0504	33.08	0.000012	0.04	49.04	198.9	0.54	8.87	[124]
D-(+)-glucose	500	0	19.075	12.637	2.471	3.61	52.66	24.72	6.85	1.203	7.37	0.128	34.956	0.000210	0.13	84.7	740.2	1.08	10.59	[18]
polyacrylonitrile	500	0	19.860	16.542	1.813	3.52	62.24	25.94	7.37	1.236	17.97	0.208	31.168	-	0.31	54.0	728.1	1.13	10.56	[18]
polyacrylonitrile	500	0	22.083	0	5.446	3.67	-	22.91	6.24	0.937	12.10	0.113	18.670	0.000341	0.18	71.3	510.9	0.83	11.74	[18]
Jute	70	0	1	0.4	6.16	3.76	42.10	18.	4.9	0.919	13.19	0.010	3.08	0.007	0.15	60.6	336.1	0.55	-	[73

fibers	0		3.74	2				44	0					352						]
Jute fibers	700	0	15.44	0.37	4.40	3.71	52.03	16.28	4.39	0.881	15.30	0.005	1.36	0.005475	0.31	58.1	397.4	0.66	-	[73]
starch	1000	0	2.3	0	3.5	3.72	35.96	22.67	6.09	1.57	5.12	0.35	273.2	0.020724	0.16	55.03	217.34	0.33	10.26	[125]
1,2,4,5-benzenetetracarboxylic anhydride	600	0	9.79	0	14.2	3.97	40.41	23.15	5.83	0.83	2.51	0.280	446.1	0.007179	0.44	29.33	153.0	-	-	[126]
1,2,4,6-benzenetetracarboxylic anhydride	700	0	8.69	0	11.64	4.00	40.52	26.82	6.71	0.90	3.00	0.291	388.6	0.006818	0.58	44.65	142.5	-	-	[126]
1,2,4,7-benzenetetracarboxylic anhydride	800	0	6.25	0	9.19	4.00	36.47	26.09	6.52	0.93	3.29	0.273	331.4	0.003342	0.27	48.15	384.7	0.72	-	[126]
1,2,4,8-benzenetetracarboxylic anhydride	900	0	4.89	0	8.20	3.86	36.55	26.17	6.78	1.00	3.30	0.265	320.5	0.003004	0.45	44.65	285.9	-	-	[126]
m-phenylenediamine and formaldehyde	1200	0	0.04	3.89	7.60	4.25	89.00	25.00	5.88	2.69	3.45	0.013	14.5	0.048478	0.18	71	283.3	0.28	-	[127]
m-phenylenediami	1400	0	0.05	3.74	0.86	3.85	115.0	30.00	7.79	1.99	8.77	0.019	8.6	0.012289	0.07	87	376.6	0.34	-	[127]

ne and formaldehyde																				
m-phenylenediamine and formaldehyde	1600	0	0.13	2.37	1.55	3.60	148.0	36.00	10.0	1.29	9.59	0.155	64.6	0.047533	0.16	57	155.3	0.32	-	[127]
k-carrageenan	600	0	1.5	0	7.8	3.40	50.92	19.14	5.63	1.37	3.42	0.42	491	0.0000039	0.08	28.2	121.3	0.50	-	[128]
k-carrageenan	600	0	0.7	12.6	8.7	3.50	50.58	13.12	3.75	1.67	2.13	0.30	563	0.0000021	0.18	28.3	247.4	0.89	-	[128]
k-carrageenan	600	0	0.8	9.3	7.1	3.60	71.80	14.08	3.91	2.27	2.47	0.36	582	0.0000051	0.12	31.9	251.2	0.83	-	[128]
k-carrageenan	600	0	0.7	8.6	6.3	3.60	64.77	16.22	4.51	1.85	1.98	0.38	768	0.0000038	0.19	36.5	287.7	0.84	-	[128]
Mango-peels	800	0	2.51	3.93	8.51	4.80	63.87	20.94	4.36	0.98	2.25	0.230	408.99	0.005387	0.36	52.0	350	0.30	10.30	[81]
tire rubber	1100	0	1.1	0	14.8	4.70	93.38	25.28	5.38	0.85	3.60	0.170	189	0.163475	0.44	48	138.1	0.54	-	[129]
tire rubber	1400	0	0.6	0	4.4	4.50	71.12	27.72	6.16	0.96	4.03	0.212	210	0.136325	0.65	57	69.8	0.19	-	[129]
tire rubber	1600	0	0.5	0	3.6	4.00	73.60	37.23	9.31	0.99	5.15	0.191	148	0.128250	0.78	66	84.1	0.15	-	[129]
polyacrylonitrile	600	0	8.19	13.42	1.78	4.20	64.29	25.17	5.99	1.55	24.85	0.131	21.15	0.000001	0.12	50.5	473.7	0.99	8.99	[130]
disposable mask	1600	0	0.3	0	2.7	3.60	15.7	17.9	4.97	1.35	7.74	0.053	27.4	0.002497	0.16	68.1	288.6	0.14	6.60	[131]
disposable mask	2000	0	0.1	0	1.1	3.53	16.1	19.0	5.38	1.46	10.79	0.048	17.8	0.002322	0.24	86.0	261.6	0.13	6.50	[131]
disposable mask	2400	0	0.1	0	1.0	3.42	29.9	52.6	15.38	1.30	12.24	0.041	13.4	0.001673	0.17	74.5	136.5	0.13	6.44	[131]
potassium glucona	850	0	2.88	12.74	13.23	4.27	54.15	12.97	3.04	1.04	2.908	0.586	1026.96	0.000055	0.16	69.5	430.8	-	6.63	[54]

te																				
potato starch	1300	0	0	0	-	3.82	37.45	11.29	2.96	1.20	0.59	0.02052	139.6	-	0.03	34.7	19.0	0.22	10.83	[132]
potato starch	1300	0	0	0	-	3.83	36.73	11.03	2.88	1.11	0.80	0.00014	0.7	-	0.11	56.9	106.3	0.22	10.75	[132]
potato starch	1300	0	0	0	-	3.82	35.14	10.91	2.86	1.15	0.82	0.00384	18.73	0.013124	0.19	76.8	217.1	0.16	10.83	[132]
potato starch	1300	0	0	0	-	3.83	33.25	12.58	3.28	1.24	0.43	0.00024	2.22	0.024920	0.15	65.5	158.7	0.15	10.31	[132]
waste tea bag	600	0	0	-	-	3.89	30.67	12.87	3.31	0.82	5.35	0.450	415	0.005621	0.03	58	152	0.54	-	[133]
waste tea bag	800	0	0	-	-	3.86	39.60	14.80	3.83	0.77	5.99	0.330	678	0.005609	0.05	51.7	167	0.53	-	[133]
waste tea bag	1000	0	0	-	-	3.84	30.18	12.54	3.27	0.69	5.47	0.280	521	0.004885	0.06	61.4	193	0.55	-	[133]
Sepals of Palmyra palm fruit calyx	700	0	0	-	-	3.77	28.08	12.66	3.36	0.89	4.60	0.210	183	0.000261	0.14	70	202	0.63	-	[134]
Sepals of Palmyra palm fruit calyx	500	0	0	-	-	3.82	24.29	12.05	3.15	0.69	11.6	0.058	20	0.000553	0.28	61	189.4	0.34	-	[134]
Sepals of Palmyra palm fruit calyx	900	0	0	0	-	3.72	26.37	12.46	3.35	1.02	3.6	0.479	532	0.000180	0.27	72	178.0	0.32	-	[134]
cellulose	1300	0	0	0	-	3.75	20.7	10.3	2.75	1.64	4.16	0.030	28.9	-	-	33.9	388.7	0.68	-	[135]
cellulose	1300	0	0	-	-	3.75	28.2	11.3	3.01	1.35	12.06	0.005	1.80	-	-	78.3	391.3	0.58	-	[135]
lignite	800	0	0	-	-	3.63	59.54	15.7	4.33	1.78	7.63	0.003	1.34	0.001894	0.13	74.85	248.6	0.60	-	[136]
Camellia shell	800	0	0	-	-	3.78	34.48	9.44	2.50	0.82	3.87	0.365	377.6	0.005978	0.11	44.1	562.6	0.62	-	[137]
Sucrose	1300	0	0	-	-	4.13	21.5	13.0	3.15	0.99	2.09	0.018	34	0.068600	-	78.9	361.0	0.38	-	[138]

Sucrose	1300	0	0	-	-	4.01	22.6	13.5	3.37	0.89	1.97	0.014	20	0.054325	-	85.2	350.0	0.39	-	[138]
Sucrose	1300	0	0	-	-	3.98	24.0	14.2	3.57	0.98	1.94	0.006	13	0.058700	-	81.3	344.0	0.30	-	[138]
Sucrose	1300	0	0	-	-	3.91	25.3	14.6	3.73	1.01	84.95	0.040	1.74	0.062700	-	86.1	338.0	0.37	-	[138]
switchgrass	1000	0	0	-	-	3.68	19.3	10.7	2.91	1.16	2.43	0.376	619	0.024880	0.08	42	199.0	0.59	-	[139]
switchgrass	2050	0	0	-	-	3.52	30.7	14.8	4.20	1.05	2.93	0.0169	23	0.016004	0.05	64	204.0	0.56	-	[139]
lotus seedpods	1000	0	0	-	-	3.77	25.7	9.0	2.39	1.08	1.24	0.233	751.6	0.000120	0.17	45.8	222.0	0.88	12.45	[140]
lotus seedpods	1200	0	0	-	-	3.86	26.9	8.6	2.23	1.04	1.56	0.055	140.7	0.001368	0.25	50.4	279.0	0.81	11.60	[140]
Bamboo powder waste	1000	0	0	0	-	4.56	44.74	16.07	3.52	-	2.26	0.250	447	0.000800	-	52.3	319.0	1.04	-	[37]
Bamboo powder waste	1200	0	0	0	-	4.28	35.36	14.36	3.36	-	2.34	0.240	415	0.000792	-	55.4	354.0	0.93	-	[37]
camellia seed	1100	0	0	-	-	3.76	45.37	10.94	2.91	0.97	4.81	0.049	40.5	0.011024	0.40	66.1	233.8	0.77	-	[141]
camellia seed	1300	0	0	-	-	3.75	56.80	12.78	3.41	1.12	6.19	0.032	20.6	0.002600	0.28	71.6	252.2	0.80	-	[141]
camellia seed	1500	0	0	-	-	3.70	60.12	14.34	3.88	1.15	13.71	0.021	6.2	0.019536	0.38	70.9	285.8	0.59	-	[141]
cotton	1000	0	0	-	-	4.14	42.6	16.0	3.86	1.05	2.058	0.277	538	0.006057	0.03	26	88.0	0.39	9.29	[142]
cotton	1300	0	0	-	-	4.10	40.3	16.2	3.95	1.10	2.027	0.0193	38	0.004656	0.13	83	315.0	0.31	9.79	[142]
cotton	1600	0	0	-	-	4.02	34.4	16.6	4.13	1.29	3.297	0.0115	14	0.011398	0.14	85	294.0	0.23	9.26	[142]
Disposable masks	1300	0	0	0	-	3.84	73.93	21.49	5.60	2.41	6.7	0.774	1656.7	-	0.14	20.3	93.9	0.47	10.45	[143]
Disposable masks	1300	0	0	0	-	3.77	53.74	13.04	3.46	2.27	6.4	0.253	440.5	0.002286	0.55	71.9	161.5	0.22	-	[143]
Disposable	1300	0	0	0	-	3.75	54.51	12.00	3.20	2.23	6.2	0.062	56.0	0.002481	0.30	88.7	270.5	0.27	10.09	[143]

masks																				
Disposable masks	1300	0	0	0	-	3.73	51.12	10.57	2.83	2.21	6	0.061	113.1	0.002753	0.32	47.2	125.5	0.22	-	[143]
hazelnut shells	1400	0	0	0	-	3.83	70.85	11.62	3.03	1.62	4.98	0.0129	10.36	0.024200	0.48	91	125.8	0.35	-	[144]
hazelnut shells	1400	0	0	0	-	3.75	65.79	10.38	2.77	1.74	3.63	0.0093	10.24	0.027075	0.17	89	79.4	0.49	-	[144]
hazelnut shells	1200	0	0	0	-	3.92	60.48	10.54	2.69	2.04	2.93	0.0079	10.77	0.018950	-	83	-	0.37	-	[144]
hazelnut shells	1200	0	0	0	-	3.67	51.87	10.70	2.92	1.98	5.32	0.0130	9.78	0.026850	-	84	-	0.32	-	[144]
hazelnut shells	1000	0	0	0	-	4.05	64.82	10.53	2.60	2.57	1.74	0.1337	307.10	0.035550	-	67	-	0.36	-	[144]
hazelnut shells	1000	0	0	0	-	3.90	63.57	9.92	2.54	2.61	3.06	0.0175	22.91	0.033600	-	78	-	0.39	-	[144]
olive shells	1200	0	0	0	-	3.85	40.85	27.73	7.20	2.62	56.36	0.031	2.2	0.000218	0.14	64.5	167.2	0.54	-	[145]
olive shells	1300	0	0	0	-	3.79	59.23	23.10	6.09	1.79	33.85	0.022	2.6	0.000096	0.24	78	288.1	0.40	-	[145]
olive shells	1400	0	0	0	-	3.64	63.69	31.30	8.60	1.73	17.65	0.015	3.4	0.000158	0.19	77	214.1	0.39	-	[145]
olive shells	1300	0	0	0	-	3.80	55.05	20.94	5.51	2.1	24.99	0.061	9.8	0.001296	0.22	77.6	279.6	0.45	-	[145]
olive shells	1300	0	0	0	-	3.77	55.08	21.20	5.62	1.76	46.04	0.048	4.2	-	0.22	78	240.8	0.40	-	[145]
olive shells	1300	0	0	0	-	3.78	52.72	21.62	5.72	2.02	17.82	0.041	9.1	-	0.21	77.8	281.7	0.40	-	[145]
Tangerine peel	800	0	0	0	0	3.90	43.40	28.16	7.22	0.92	1.90	0.533	1125	0.032724	0.11	-	153.6	-	13.35	[119]
Tangerine peel	800	0	0	0	0	3.94	37.98	28.15	7.14	0.90	2.09	0.001	1.1	0.031560	0.11	-	119.6	-	11.62	[119]
starch	1000	0	0	0	0	3.53	48.05	29.89	8.47	1.44	3.51	0.27	307.3	0.031588	0.10	21.80	97.31	0.41	10.34	[125]
polyacrylonitrile	1000	0	0	0	0	3.74	50.59	23.06	6.17	1.01	1.53	0.018	47.157	0.005752	0.15	51.1	208.1	0.32	14.50	[104]
original asphalt	1300	0	0	0	0	3.66	59.29	9.06	2.48	1.20	15.04	0.004	1.01	0.001033	0.22	62.33	159.1	0.35	9.10	[105]
agar and PA	750	0	0	0	0	3.78	41.10	17.07	4.52	1.29	3.53	1.5456	1752	0.007495	-	33.1	256	0.82	-	[107]
gelatin	800	0	0	0	0	3.50	42.75	23.30	6.66	1.01	5.16	1.05	818.3	0.034088	0.08	22.4	138.6	-	-	[74]

microcrystalline cellulose	900	0	0	0	-	3.94	20.7	10.9	2.77	2.9	2.08	0.201	386.1	0.003915	0.13	69.48	200.9	0.44	7.49	[146]
microcrystalline cellulose	1200	0	0	0	-	3.93	23.8	12.1	3.08	2.5	6.84	0.084	49.0	0.004429	0.17	72.78	200.9	0.36	7.15	[146]
microcrystalline cellulose	1400	0	0	0	-	3.86	21.9	17.3	4.48	2.2	2.71	0.023	34.1	0.001886	0.23	84.32	268.4	0.30	7.80	[146]
corn stalk	1400	0	0	0	-	3.85	82.98	16.88	4.38	1.76	4.44	0.0207	18.637	0.000236	0.26	85.9	240.6	0.19	7.76	[147]
longan kernel	1300	0	0	0	0	4.00	13.0	3.5	0.88	1.97	2.03	0.031	61.0	0.0000295	0.09	84	304.2	0.32	5.51	[26]
longan kernel	1300	0	0	0	0	3.90	13.5	3.8	0.97	1.82	2.09	0.015	29.6	0.000036	0.15	82	306.3	0.35	6.16	[26]
lignin and epoxy resin	1400	0	0	0	-	3.95	56.94	19.54	4.95	1.23	16.15	0.060	14.9	0.007144	0.34	72	250.3	0.27	9.40	[148]
lignin and epoxy resin	1400	0	0	0	-	3.92	58.79	22.23	5.67	1.19	0.23	0.0004	6.5	0.008411	0.37	82	275.5	0.22	9.19	[148]
lignin and epoxy resin	1400	0	0	0	-	3.85	55.10	20.88	5.42	1.03	4.46	0.016	13.9	0.010300	0.37	75	246.8	0.27	9.29	[148]
lignin and epoxy resin	1000	0	0	0	-	4.07	50.55	17.05	4.19	1.04	9.15	0.060	26.2	0.009044	0.25	67	183.5	0.44	9.54	[148]
lignin and epoxy resin	1200	0	0	0	-	3.84	52.55	19.29	5.19	1.08	2.71	0.009	13.8	0.008100	0.32	75	224.6	0.25	9.22	[148]
lignin and epoxy	1600	0	0	0	-	3.76	70.04	22.62	6.02	1.34	3.15	0.006	7.1	0.013333	0.43	81	255.1	0.29	9.28	[148]

resin																				
polystyrene	800	0	0	0	0	3.80	51.89	16.03	4.22	2.67	4.54	0.008	7	0.038100	0.16	70.2	257.1	0.28	9.55	[149]
polystyrene	800	0	0	0	-	3.62	47.92	24.05	6.64	2.53	5.30	0.003	2	0.027850	0.13	58.3	211.7	0.37	9.57	[149]
polystyrene	800	0	0	-	-	3.83	54.58	20.60	5.38	2.79	2.29	0.255	445	0.055175	0.10	46.0	133.5	0.44	9.35	[149]
phenolic resin	600	0	0	-	-	3.72	19.3	10.2	2.74	1.42	5.54	0.35	252.7	0.017600	0.33	16.9	147.3	0.36	-	[150]
phenolic resin	600	0	0	-	-	3.72	20.4	10.8	2.90	1.19	7.07	0.16	90.5	0.009148	0.78	20.8	147.3	0.32	-	[150]
phenolic resin	600	0	0	-	-	3.72	20.6	11.0	2.96	1.12	5.89	0.10	67.9	0.005724	0.32	61.3	261.1	0.23	-	[150]
phenolic resin	600	0	0	-	-	3.72	21.4	11.0	2.96	1.02	3.79	0.08	84.4	0.004268	0.32	56.0	232.1	0.21	-	[150]
sucrose	1000	0	0	0	-	3.93	61.36	18.26	4.65	2.09	1.92	0.158	329.0	0.0000196	0.03	65.3	175.4	0.30	14.66	[151]
sucrose	1000	0	0	0	-	3.89	60.12	17.54	4.51	2.03	2.21	0.264	478.4	0.0000463	0.06	55.6	142.4	0.34	14.41	[151]
sucrose	1000	0	0	0	-	3.64	74.03	23.20	6.37	2.01	7.22	0.024	13.3	0.0000387	0.06	70.2	279.6	0.35	13.55	[151]
lignin	1300	0	0	0	-	3.94	46.8	8.6	2.18	1.26	7.88	0.017	8.44	0.004338	0.08	59.6	291.7	0.20	11.34	[152]
lignin	1300	0	0	0	-	3.99	45.7	8.5	2.13	1.35	4.24	0.124	117.17	0.005257	0.09	59.5	253.5	0.29	11.39	[152]
lignin	1300	0	0	0	-	4.06	47.4	8.8	2.17	1.37	2.96	0.137	185.42	0.003183	0.09	66.6	306.7	0.12	11.68	[152]
lignin	1300	0	0	0	-	3.90	42.7	9.5	2.44	1.25	1.82	0.007	1.82	0.004107	0.06	66.2	299.2	0.15	11.67	[152]
long-flame coal	1300	0	0	-	-	3.70	38.8	10.2	2.76	1.69	4.84	0.06	49.6	0.000035	0.16	69	216.6	0.27	9.26	[153]
long-flame coal	1400	0	0	-	-	3.65	41.2	10.8	2.96	1.55	5.85	0.03	20.5	0.000024	0.21	74	217.6	0.28	9.21	[153]
long-flame coal	1500	0	0	-	-	3.60	41.8	11.7	3.25	1.5	5.13	0.04	31.2	0.000039	0.19	79	231.7	0.24	9.27	[153]
long-flame coal	1600	0	0	-	-	3.58	45.8	11.8	3.30	1.46	6.45	0.03	18.6	0.000063	0.14	76	202.4	0.28	9.31	[153]
Biomass	1300	0	0	0	-	3.89	39.5	7.3	1.88	1.19	2.98	0.053	70.5	0.002308	0.15	76.9	256.5	0.15	9.74	[154]

Biomass	1300	0	0	0	-	3.80	41.8	8.3	2.18	1.28	3.33	0.046	55.0	0.002126	0.12	77.2	282.1	0.15	-	[154]
Biomass	1300	0	0	0	-	3.72	44.2	9.1	2.45	0.98	3.71	0.011	11.9	0.002070	0.11	80.4	284.7	0.15	9.21	[154]
Biomass	1300	0	0	0	-	3.58	47.5	8.4	2.35	0.90	7.99	0.019	9.7	0.002302	0.16	77.7	270.6	0.17	-	[154]
sucrose	1400	0	0	-	-	4.17	79.71	20.75	4.98	1.19	2.67	0.043	63.8	0.001431	0.34	58.1	229.8	0.24	12.18	[155]
sucrose	1400	0	0	-	-	4.14	87.25	20.91	5.05	1.19	2.40	0.040	66.2	0.001103	0.42	62.8	255.8	0.24	-	[155]
sucrose	1400	0	0	-	-	4.10	75.47	19.92	4.86	1.16	4.01	0.007	6.8	0.001051	0.36	66.0	259.4	0.24	12.20	[155]
sucrose	1400	0	0	-	-	4.09	97.82	20.25	4.95	1.14	5.20	0.007	5.6	0.001408	0.54	67.5	268.2	0.24	-	[155]

The contents of P, S, N, and O were obtained from the literature; the values of d_{002}, La, Lc, and n (number of graphite layers) were determined by XRD; I_D/I_G is the intensity ratio of the D-band to the G-band; the values of D, V_{Total}, and SSA were derived from N_2 adsorption–desorption isotherms, with the SSA values directly obtained from the literature. The cyclic factor was taken from the 100th cycle, with the specific calculation formulae shown in Equations (7) and (8); a lower value indicates better cycling performance. The rate factor was derived from the absolute slope value of the relationship between discharge capacity and current density; a higher value indicates better rate performance. The capacity was selected as the average discharge capacity at 100 mA/g. The working plateau was defined as the average operating voltage within the discharge range, with the specific calculation formulae shown in Equations (9). The D_{Na^+} was taken from the discharge phase, and the D_{Na^+} during discharge was obtained from the literature. The negative logarithm (i.e., $-LgD_{Na^+}$) was calculated and averaged as the output target.

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