

Supplementary Information

Improved Color Yield on Polyamide 66 with a High Molecular Weight Acid Dye: Optimization by Response Surface Methodology

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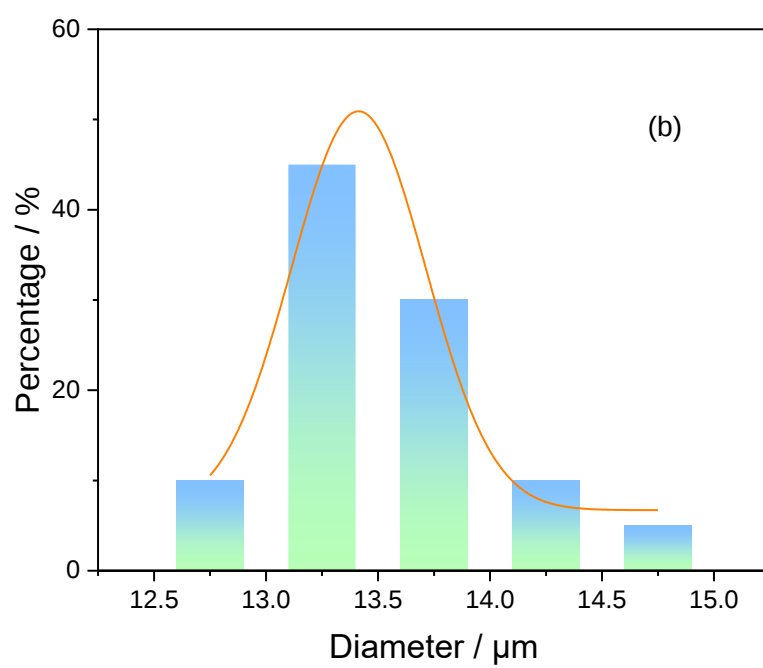
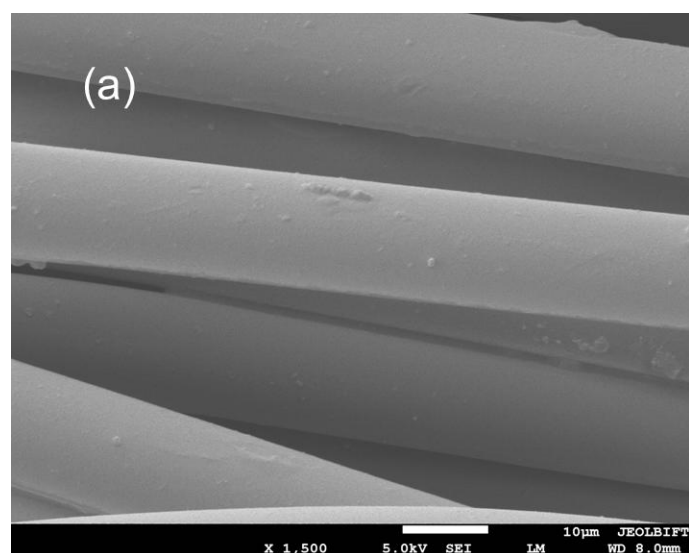


Figure S1. (a) SEM image of the nylon fibers and (b) the distribution of fiber diameter.

Table S1. Relationship between q_t/q_e and Dt/a^2 ¹

$q_t/q_e \times 10^2$	$Dt/a^2 \times 10^2$	$q_t/q_e \times 10^2$	$Dt/a^2 \times 10^2$	$q_t/q_e \times 10^2$	$Dt/a^2 \times 10^2$	$q_t/q_e \times 10^2$	$Dt/a^2 \times 10^2$
0	0.000	25	1.367	51	6.592	77	19.07
1	0.1975	26	1.486	52	6.902	78	19.83
2	0.7916	27	1.611	53	7.222	79	20.63
3	1.788	28	1.742	54	7.553	80	21.47
4	3.192	29	1.878	55	7.894	81	22.35
5	5.008	30	2.02	56	8.245	82	23.28
6	7.241	31	2.168	57	8.608	83	24.27
7	9.897	32	2.332	58	8.981	84	25.23
8	12.98	33	2.483	59	9.365	85	26.43
9	16.5	34	2.65	60	9.763	86	27.62
10	20.45	35	2.823	61	10.17	87	28.91
11	24.89	36	3.004	62	10.59	88	30.29
12	29.71	37	3.19	63	11.03	89	31.79
13	35.01	38	3.385	64	11.48	90	33.44
14	40.79	39	3.385	65	11.95	91	35.26
15	47.03	40	3.793	66	12.43	92	37.3
16	53.73	41	4.008	67	12.93	93	39.61
17	60.93	42	4.231	68	13.44	94	42.27
18	68.63	43	4.46	69	13.98	95	45.03
19	76.82	44	4.698	70	14.53	96	49.28
20	85.51	45	4.943	71	15.13	97	54.28
21	94.71	46	5.197	72	15.7	98	61.27
22	104.4	47	5.458	73	16.32	99	73.25
23	114.7	48	5.727	74	16.97	99.5	85.24
24	125.4	49	6.005	75	17.64	99.9	113.1
		50	6.292	76	18.34		

q_t : amount of dyestuffs on the fibers at time t (mg g^{-1}); q_e : amount of dyestuffs on the fibers at equilibrium (mg g^{-1}); D : diffusion coefficient ($\text{m}^2 \text{min}^{-1}$); t : dyeing time (min); a : radius of the fiber (μm).

Reference

1. Wu, J.; Feng, L.; Lin, L.; *Pigm. Resin Technol.* **2022**, *51*, 236. [[Crossref](#)]

