toxics

MDPI

Supplementary Materials: Application of ZnO-Nd Nano-Photocatalyst for the Reactive Red 198 Dye Decolorization in the Falling-Film Photocatalytic Reactor

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Table S1. Regression analysis and significance of the components in the quadratic model for RR198 degradation by ZnO-Nd.

Std	Run	Factor 1 A: Catalyst dosage	Factor 2 B: pH	Factor 3 C: [Initial dye concentration]	Response 1 %R1
8	1	0.16	7	30	25.72
7	2	0.04	7	30	14.64
9	3	0.04	5	20	19.79
14	4	0.1	5	30	31.37
15	5	0.1	5	20	56.13
4	6	0.16	7	10	73.24
2	7	0.16	3	10	56.32
3	8	0.04	7	10	27.15
17	9	0.1	5	20	60.3
18	10	0.1	5	20	60.46
12	11	0.1	7	20	46.51
16	12	0.1	5	20	56.03
6	13	0.16	3	30	15.17
13	14	0.1	5	10	80.3
19	15	0.1	5	20	59.67
1	16	0.04	3	10	17.23
10	17	0.16	5	20	57.63
5	18	0.04	3	30	9.18
11	19	0.1	3	20	20.88

Table S2. Analysis of variance of the developed quadratic model for RR198 degradation by ZnO-Nd in presence of UV light.

Source	Sum of Squares	df	Mean Square	F Value	*p*-value Prob > F
Model	8488.35	9	943.15	16.98	0.0001
A-cat%	1962.52	1	1962.52	35.32	0.0002
B-pH	468.95	1	468.95	8.44	0.0174
C-[dye]	2501.46	1	2501.46	45.02	< 0.0001
AB	18.27	1	18.27	0.33	0.5804
AC	579.87	1	579.87	10.44	0.0103
BC	14.66	1	14.66	0.26	0.6198
A^2	454.33	1	454.33	8.18	0.0188
B^2	876.44	1	876.44	15.78	0.0032
C^2	48.90	1	48.90	0.88	0.3727

Table S3. Coefficient of regression and standard errors**.**

Factor	Coefficient Estimate	Standard Error
Intercept	55.45	2.73
A-cat%	14.01	2.36
B-pH	6.85	2.36
C-[dye]	−15.82	2.36
AB	1.51	2.64
AC	−8.51	2.64
BC	−1.35	2.64
A^2	−12.89	4.51
B^2	−17.91	4.51
C^2	4.23	4.51