nanomaterials

MDPI

Supporting Materials

A Facile Strategy for the Preparation of N-Doped TiO_2 with Oxygen Vacancy via the Annealing Treatment with Urea

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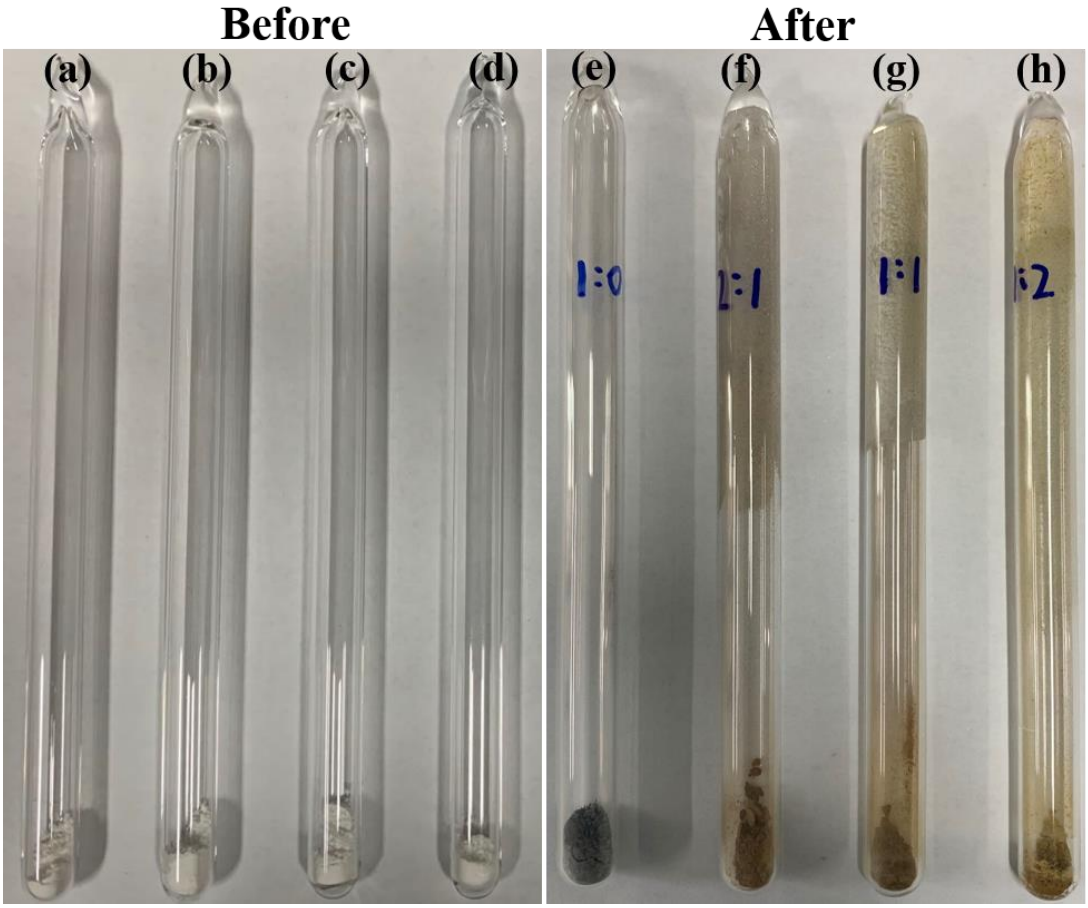

Figure S1. Digital photographs of TiO_2 and urea (a-d) before and (e-h) after the annealing treatment (500 °C, 2h). The weight ratios of TiO_2 to urea are (a, e) 1:0, (b, f) 2:1, (c, g) 1:1 and (d, h) 1:2, respectively.

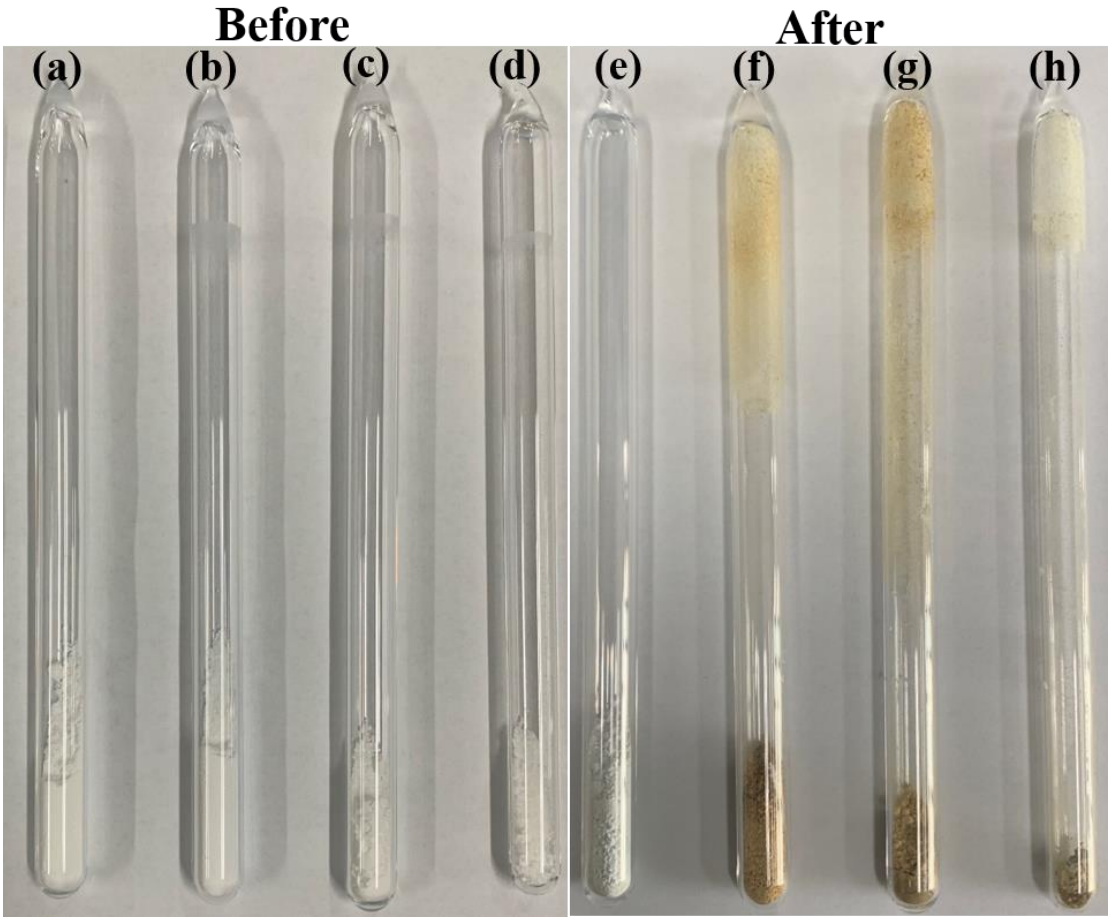

Figure S2. Digital photographs of P25 and urea (a-d) before and (e-h) after the annealing treatment (500 °C, 2h). The weight ratios of P25 to urea are (a, e) 1:0, (b, f) 2:1, (c, g) 1:1 and (d, h) 1:2, respectively.

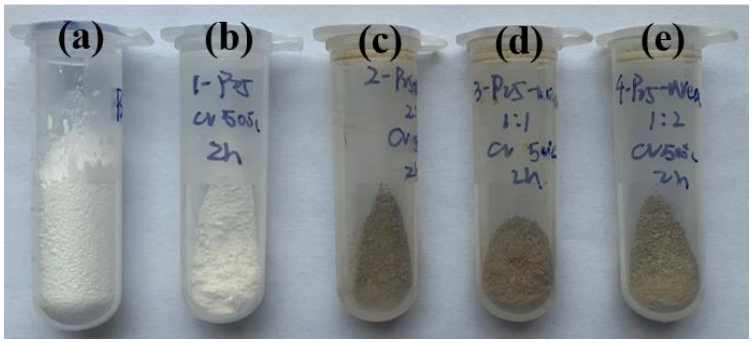

Figure S3. Digital photographs of (a) P25, (b) A-P25, (c) N-P25 (2:1), (d) N-P25 (1:1), and (e) N-P25 (1:2).

Figure S4. Digital photographs of urea (a) before and (b) after the annealing treatment (500 °C, 2h).

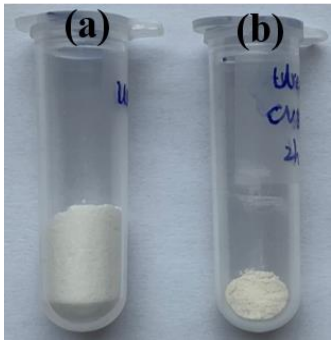

Figure S5. Digital photographs of the urea (a) before and (b) after the annealing treatment (500 °C, 2h).

Table S1. BET surface area of P25, A-P25, N-P25 (2:1), N-P25 (1:1), and N-P25 (1:2).

Sample	BET (m^2/g)
P25	47.53
A-P25	31.85
N-P25 (2:1)	47.54
N-P25 (1:1)	48.74
N-P25 (1:2)	38.86

Table S2. Comparison of photocatalytic activity of N-TiO_2 photocatalyst for degradation of MO.

Catalysts	Conditions	Removal %	Light source	Preparation method	Ref.
TON-2	MO (10 mg/L), Catalyst (1 g/L)	95% at 180 min	Xenon lamp with a 420 nm cut-off filter	Solvothermal method	1
N550	MO (20 mg/L), Catalyst (1 g/L)	50% at 300 min	LZC-420	Hydrothermal method	2
NT3	MO (15 mg/L), Catalyst (0.3 g/L)	66% at 180 min	Xenon lamp with a 400 nm cut-off filter	Solvothermal method	3
5N-TiO_2	MO (5 mg/L), Catalyst (/)	89% at 180 min	Metal halide lamp	Incipient wetness impregnation method	4
NTNTs-350	MO (10 mg/L), Catalyst (1 g/L)	96% at 240 min	Fluorescent lamps	Hydrothermal	5
N-TiO_2	MO (20 mg/L), Catalyst (0.01 g/L)	61% at 90 min	Mercury lamp	Heat treatment	6
NT5.0	MO (20 mg/L), Catalyst (0.1 g/L)	10% at 150 min	Xenon lamp with a 400 nm cut-off filter	Hydrothermal	7
N-TiO_2 (1:2)	**MO (25 mg/L), Catalyst(1 g/L)**	**70% at 120 min**	**Xenon lamp with a 420 nm cut-off filter**	**Hydrothermal Annealing treatment**	**This work**

References

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