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Supporting Information

Preparation and performance of Novel Ni-doped Iron oxychloride with High singlet oxygen generation

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Table S1 Total elemental Maps of Ni-20.

Elments	Types	Apparent concentration	k value	Wt%	Wt% Sigma	Standard
O	K	16.50	0.05552	21.69	0.11	SiO_2
Cl	K	23.55	0.20577	32.62	0.10	NaCl
Fe	K	19.74	0.19744	30.59	0.13	Fe
Ni	K	9.42	0.09419	15.09	0.14	Ni
Summary：				100.00		

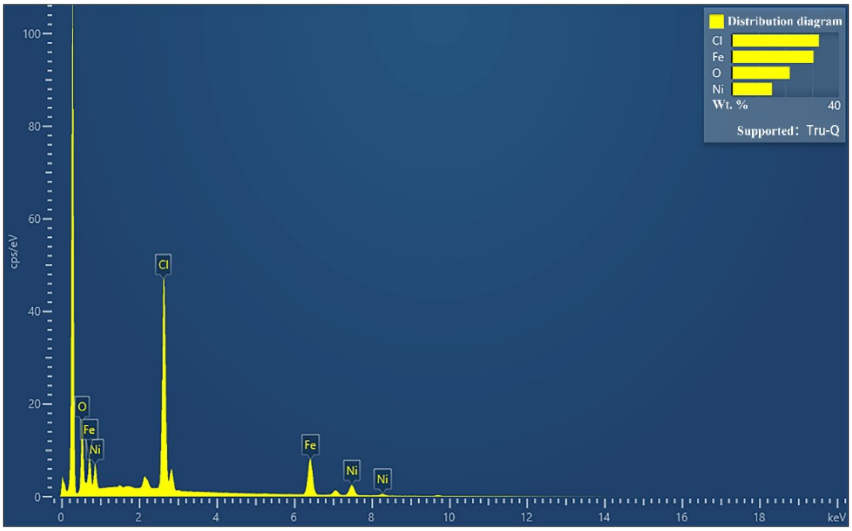

Fig. S1 Total elemental Maps of Ni-20.

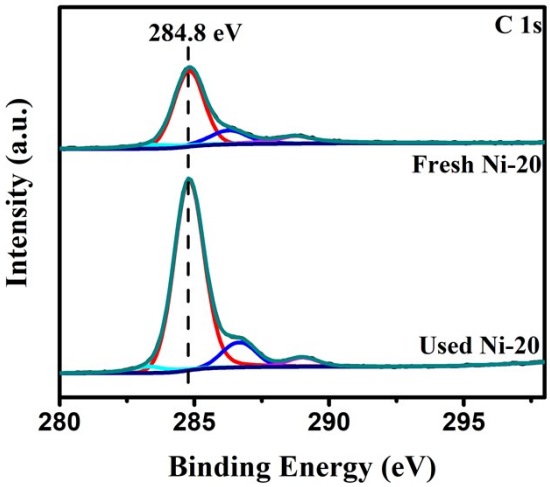

Fig. S2 C 1s spectrum of fresh Ni-20 and usecd Ni-20.

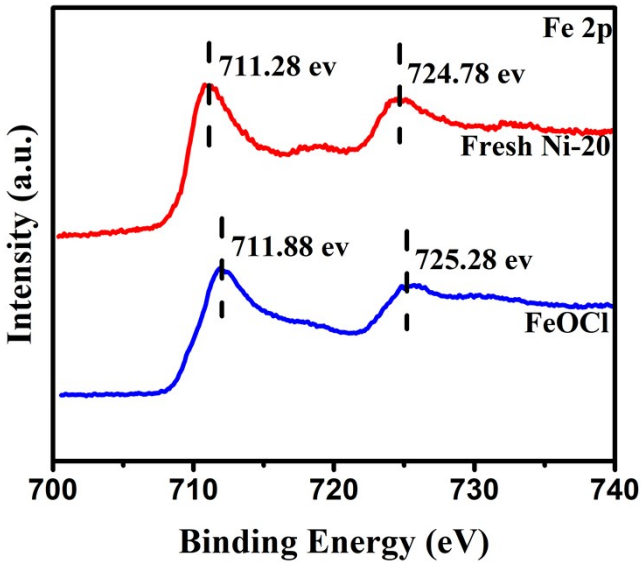

Fig. S3 Fe 2p spectrum of fresh Ni-20 and FeOCl.

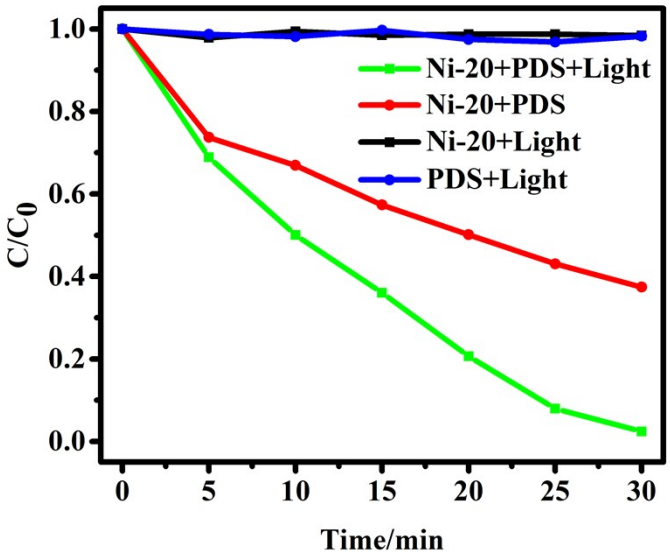

Fig. S4 Phenol degradation under different conditions.

Condition: 0.8 g/L Ni-20, 2 mM PDS, 20 mg/L phenol, initial pH 6.5, visible light;

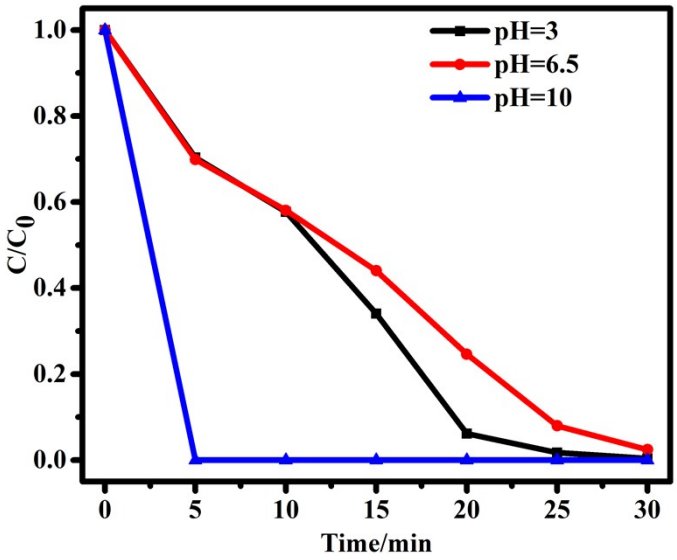

Fig. S5 Phenol degradation under different initial pH.

Condition: 0.8 g/L Ni-20, 2 mM PDS, 20 mg/L phenol, visible light;

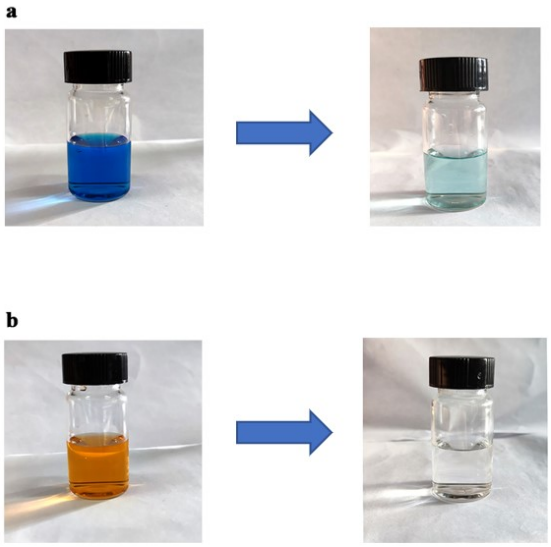

Fig. S6 Degradation of 20 mg/L methylene blue (a) and acid Orange II (b).

Condition: 0.1 g/L Ni-20, 1 mM PDS, visible light, 10 min.

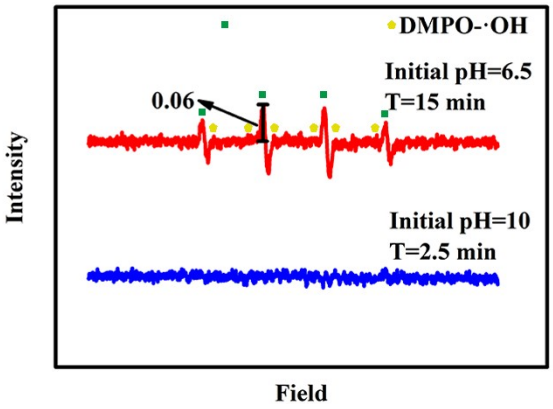

Fig. S7 EPR spectra of $SO_4^{\cdot-}$ and ·OH.

Conditions: 0.8 g/L Ni-20, 2 mM PDS, visible light, 15min, 200mM DMPO for initial pH 6.5; 0.2 g/L Ni-20, 0.5 mM PDS, visible light, 2.5 min, 200 mM DMPO for initial pH 10.

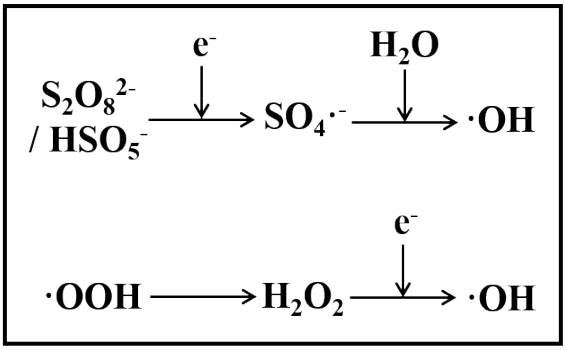

Fig. S8 Origin of possible $SO_4^{\cdot-}$ and ·OH