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Oxygen vacancy induced MnO_2 catalysts for efficient toluene catalytic oxidation

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Supplementary information

Table S1 The Physicochemical properties of fresh and spent MnO_2-1.8 catalyst

Catalysts	Crystalline size (nm)	I_{310}/I_{110}	XPS data (%)				
			Mn^{4+}	Mn^{3+}	O_{latt}	O_{ads}	O_{OH}
Fresh MnO_2-1.8	18.9	1.87	61.3	38.7	17.6	68.3	14.1
Spent MnO_2-1.8	18.2	1.86	67.3	32.7	23.2	59.4	17.4

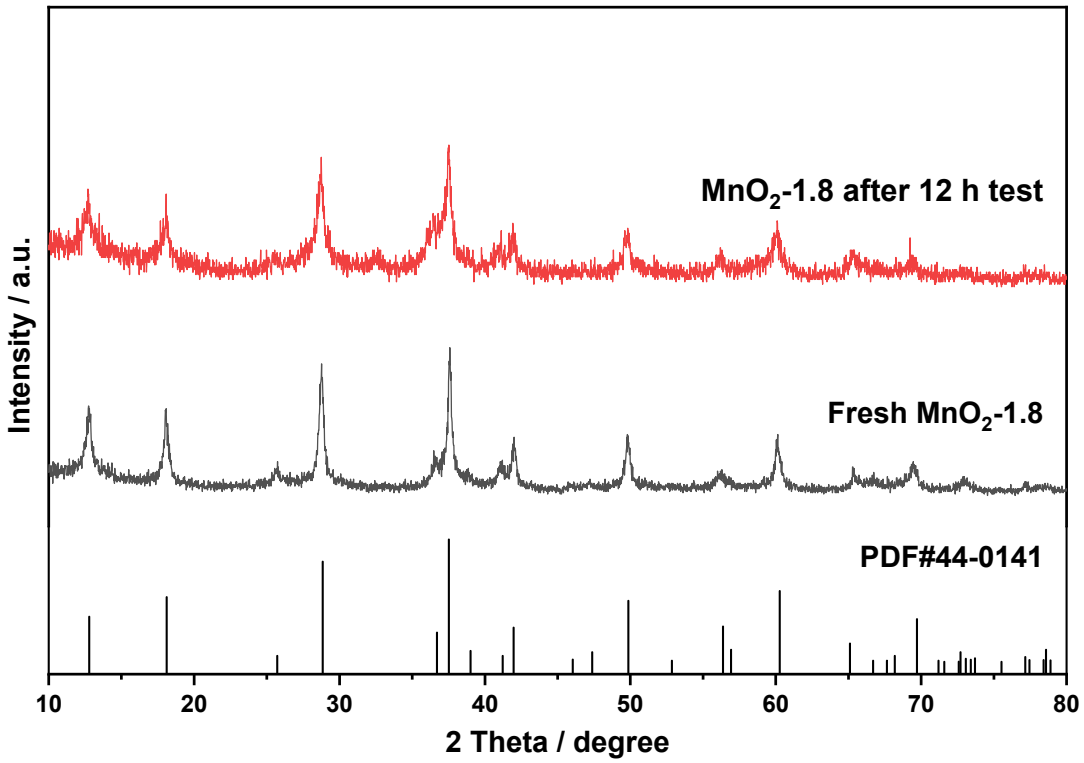

Fig. S1 The XRD pattern of the fresh and used MnO_2-1.8 catalyst

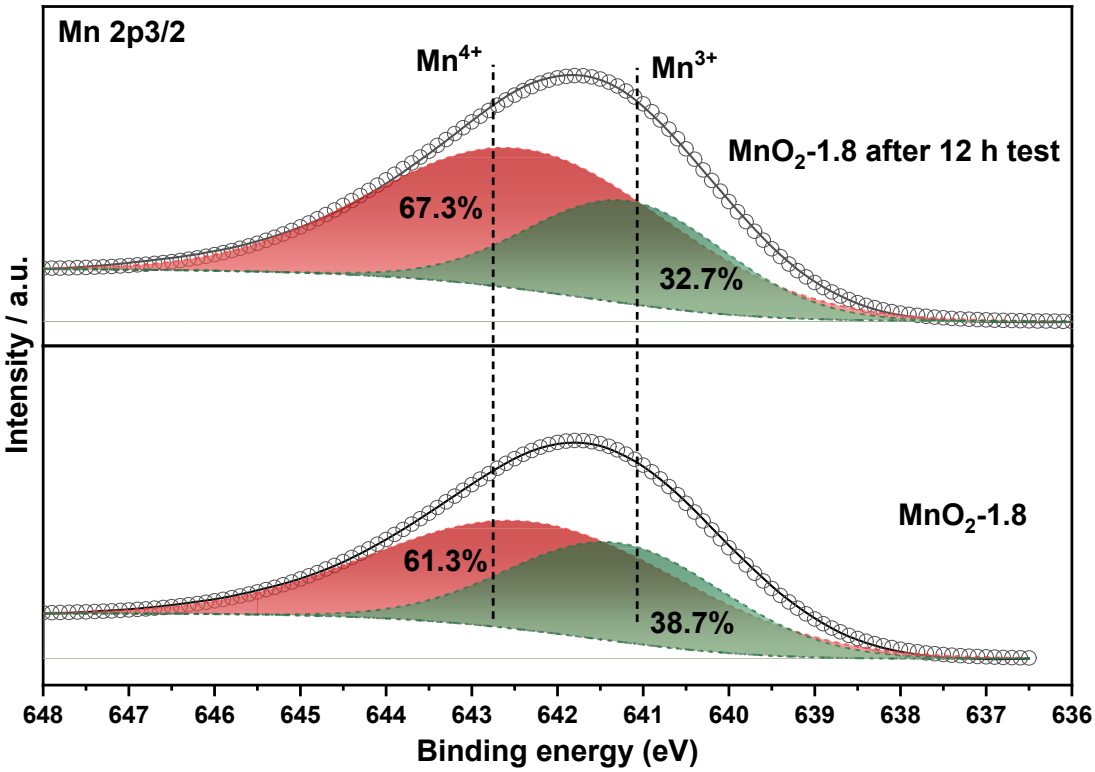

Fig. S2 The Mn 2p3/2 XPS spectra of the fresh and spent MnO_2-1.8 catalyst.

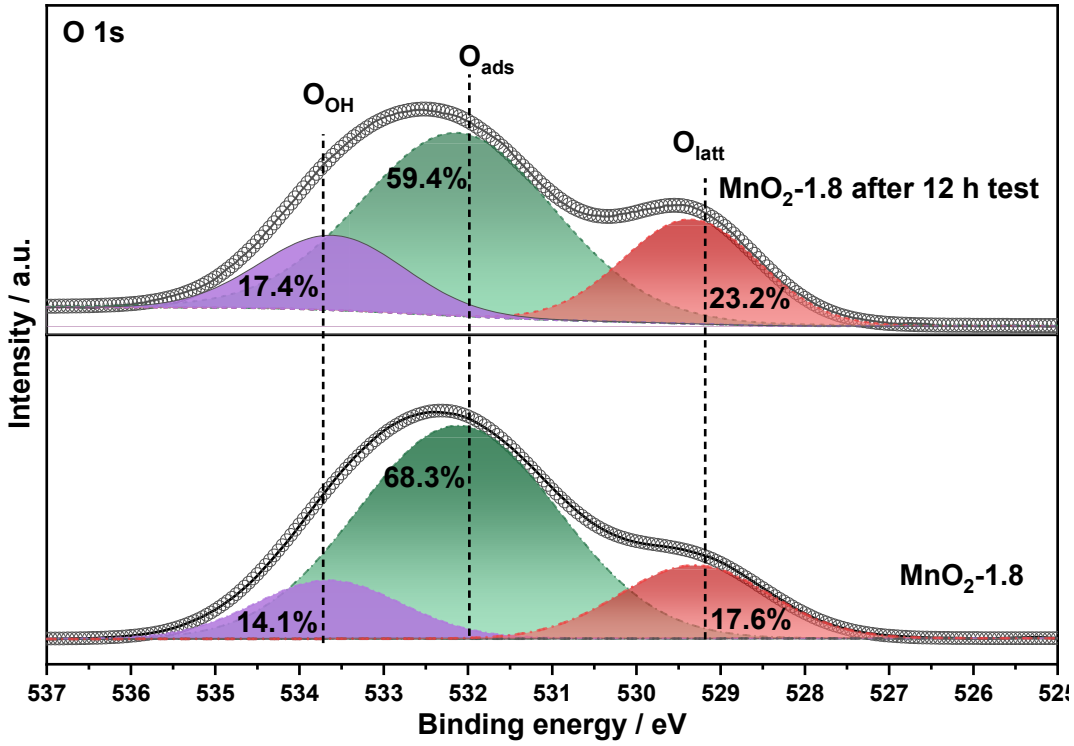

Fig. S3 The O 1s XPS spectra of the fresh and spent MnO_2-1.8 catalyst.