**Supplementary Materials for** 

## Oxidation of refractory sulfur compounds with molecular oxygen over Ce-Mo-O catalyst

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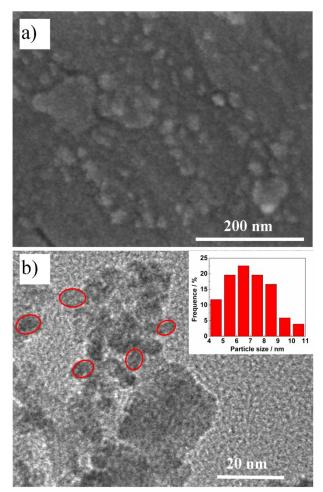


Fig. S1 SEM (a), TEM images (b) and particle size distribution of the catalyst (b inset)

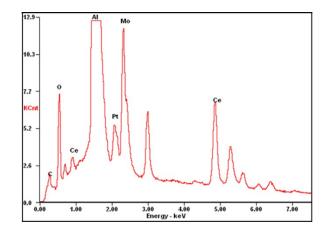


Fig. S2 EDS spectrum of the Ce-Mo-O catalyst

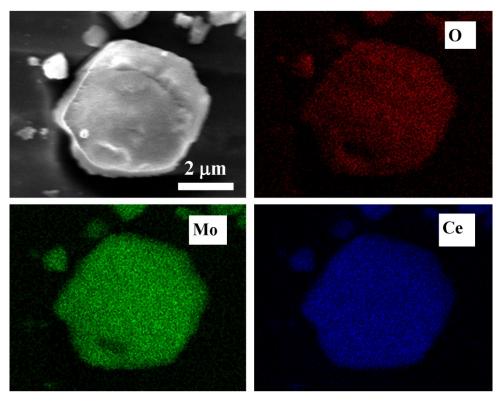


Fig.S3 EDS mapping of the Ce-Mo-O catalyst

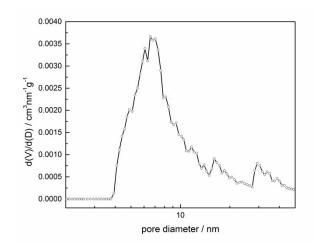


Fig.S4 mesopore size distribution of the catalyst

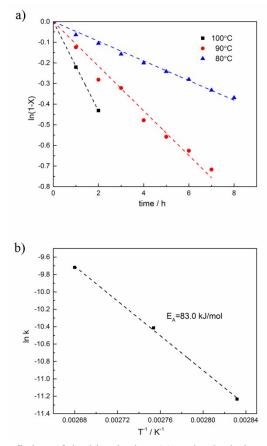


Fig.S5 Pseudo-first-order fitting of the kinetic data (a) and calculation of Arrhenius equation (b).

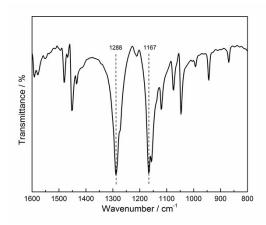


Fig.S6 FT-IR spectrum of the oxidation product

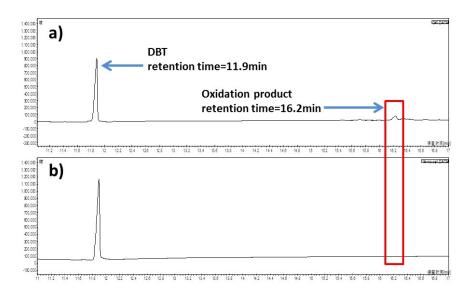


Fig.S7 GC-FID analysis of control experiments (reaction conditions: 100°C, 500ppmwS DBT in 20g decalin, O<sub>2</sub> bubbled in at ambient pressure)