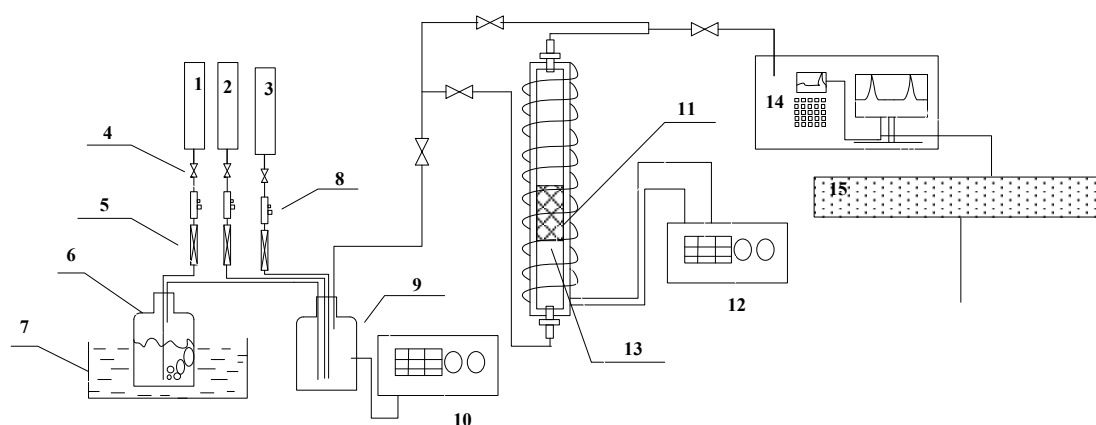


Supplementary material

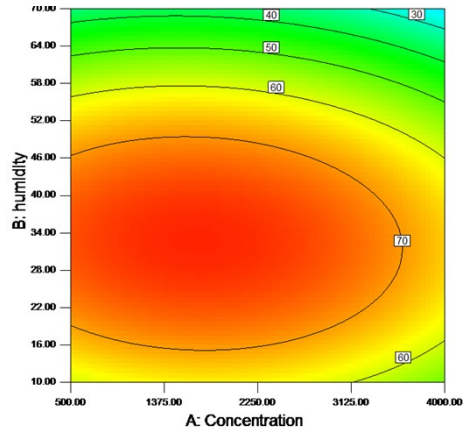


- 1.N₂ 2.N₂ 3.Air 4.Globe valve 5.Check valve 6.Bubbling Device 7.Thermostatic waterbath
8.MFC 9.Gas mixing unit 10.Humidometer 11.Catalysts 12.Temperature control unit
13.Fixed bed catalytic reactor 14 Gas chromatograph 15.Sampling devices

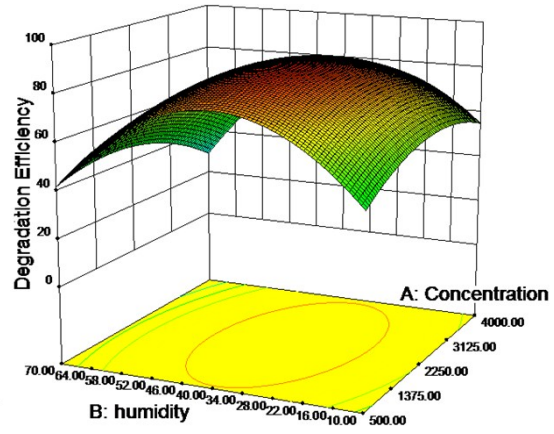
SFig. 1 Schematic diagram of reaction system



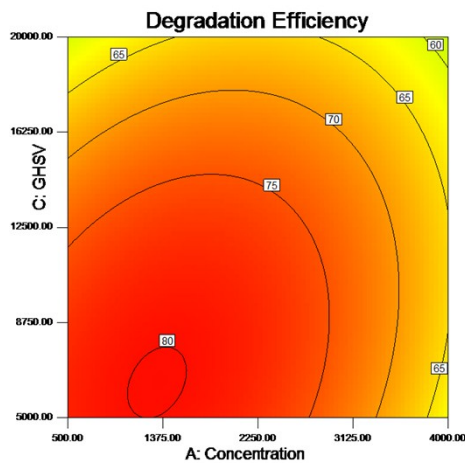
SFig. 2 Appearance comparison of the catalyst before and after usage



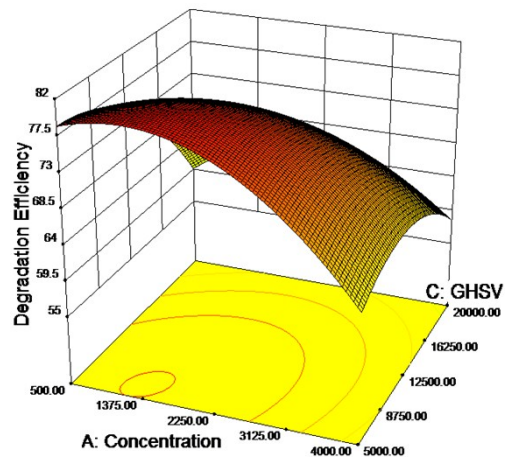
(a-1)



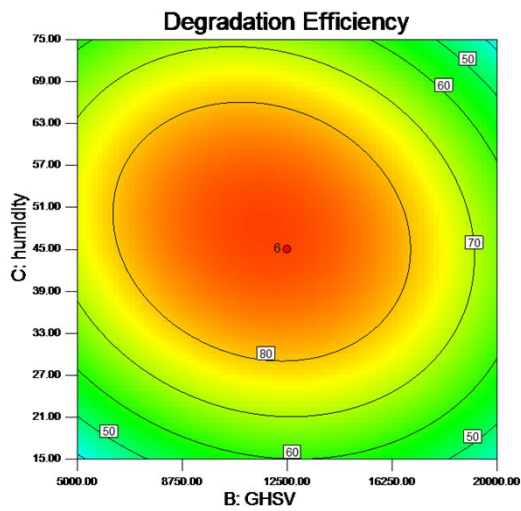
(a-2)



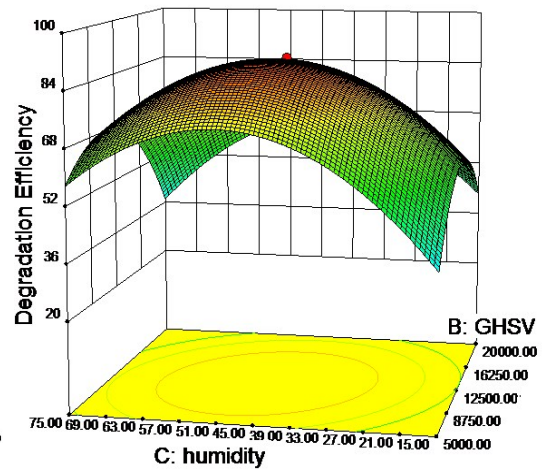
(b-1)



(b-2)

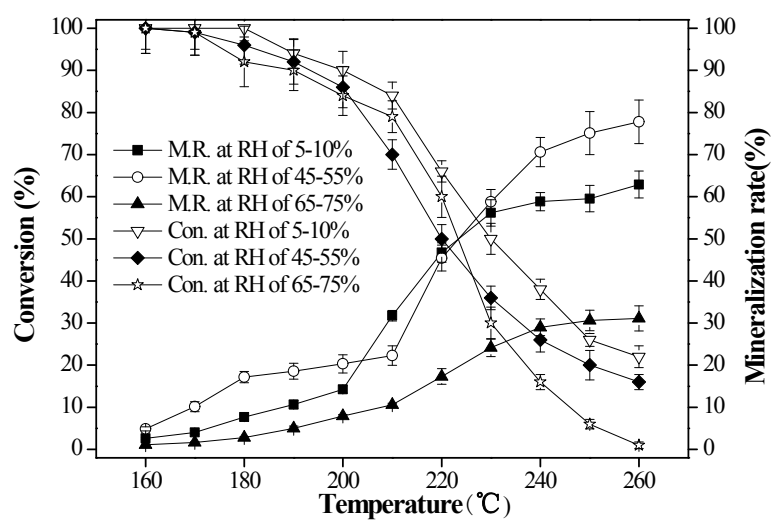


(c-1)



(c-2)

SFig. 3 3D response surface figure between different process parameters



SFig.4 Conversion and mineralization rate of cyclohexanone by Pt-1.0%/ γ - Al_2O_3 under different RHs.