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Supporting information

Windmill-type mixed-metal clusters containing schiff-base ligands as efficient catalyst for cyclohexene oxidation

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Scheme S1 The hydrolysis of 1,2-cyclohexanediamine-N,N'-bis-(3-carboxylsalicylide).



Fig. S1 IR spectrum of the compound 1.



Fig. S2 IR spectrum of the compound 2.



Fig. S3 UV-Visible spectra of compounds 1 and 2 in the solid state.



Fig. S4 TG curves of the compounds 1 and 2.



Fig. S5 Yield versus time curves for cyclohexene oxidation catalyzed by **2**. Reaction conditions: cyclohexene (0.236 mmol), t-BuOOH (1.250 mmol), octane (0.074 mmol: as an internal), catalyst **2** (0.004 mmol), T = 70 °C.



Fig. S6 Conversion versus time curves for oxidation of cyclohexene with 2 as catalyst (square) and filtration of 2 (circle).



Fig. S7 Conversion versus time curves for oxidation of cyclohexene with 1 (bluish violet) and 2 (pink) as catalyst in three subsequent runs.



Fig. S8 PXRD patterns of compound **1:** (a) calculated, (b) as-synthesized, (c) recovered after catalytic reaction



Fig. S9 PXRD patterns of compound **2:** (a) calculated, (b) as-synthesized, (c) recovered after catalytic reaction.



Fig. S10 IR spectrum of ligand L.



Fig. S11 IR spectrum of the mononuclear copper complex CuLCl.



Fig. S12 Yield versus time curves for cyclohexene oxidation catalyzed by the mononuclear copper complex. Reaction conditions: cyclohexene (0.236 mmol), t-BuOOH (1.250 mmol), octane (0.074 mmol: as an internal), catalyst **2** (0.024 mmol), T = 70 °C.