Supporting Information

A Discrete $\{Co_4(\mu_3\text{-}OH)_4\}^{4+}$ Cluster with an Oxygen-rich Coordination Environment as a Catalyst for Epoxidation of Various Olefins

Sun Young Lee,[a] Namseok Kim,[b] Myoung Mi Lee,[a]* Young Dan Jo,[a] Jeong Mi Bae,[a] Min Young Hyun,[a] Sungho Yoon,[b]* Cheal Kim[a]*

[a]*Department of Fine Chemistry, Seoul National University of Science and Technology, Seoul 139-743, Korea. Fax: +82-2-973-9149; Tel: +82-2-970-6693; E-mail: ohno801126@nate.com and chealkim@seoultech.ac.kr*

[b]*Department of Chemistry, College of Natural Sciences, Kookmin University, 861-1 Jeoungnung-dong, Seongbuk-gu, Seoul 136-702, Korea. E-mail: yoona@kookmin.ac.kr*

Measurement of magnetic susceptibility by Evans Method.

The compound **1** to be analyzed was added in the empty wilmad coaxial (0.5 mm outer diameter) NMR tube using a suitable solvent (deuterated in case of superconducting magnet). The inner capillary of the wilmad coaxial was filled with the pure solvent and the compound dissolved in the same solvent was filled in the outer capillary of the NMR tube. There were two peaks at 297 K; one due to the pure solvent and other due to the solvent that has been paramagnetically shifted by the dissolved compound. The chemical shifts of these two peaks and the difference between them were measured n hertz. The magnetic moment was calculated based on following equation

$$\mu = 0.0618(\Delta f \times T/2f \times M)^{1/2},$$

where, Δf = Difference in frequency in HZ; f = oscillator frequency; T = absolute temperature; M = molar concentration of the metal ion.

References:

S1) D. F. Evans, J. Chem. Soc. 36 (1959) 2003.

S2) D. F. Evans, G. V. Fazakerley, R. F. Phillips, J. Chem. Soc. (1971) A 1931.

S3) D. F. Evans, D. A. Jakubovic**,** J. Chem. Soc., Dalton Trans., (1988) 2927.

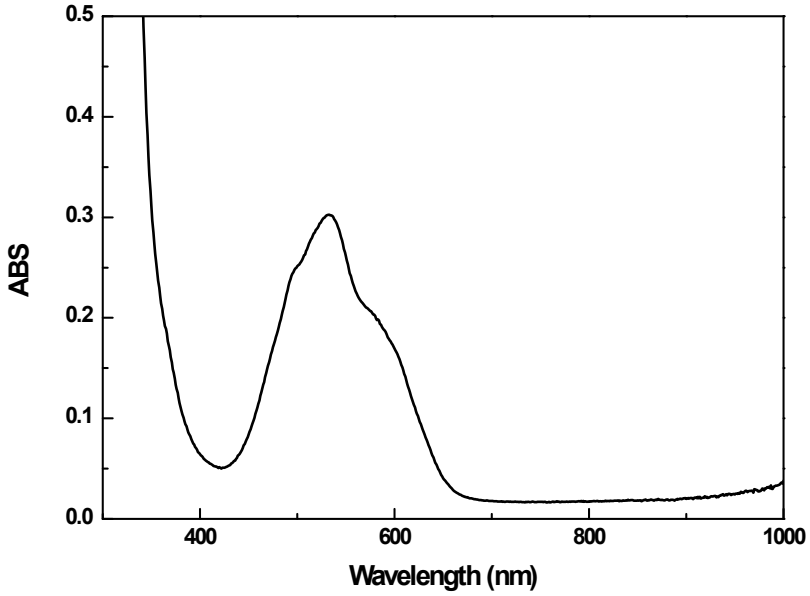

Figure S1. The UV-vis spectrum for the complex **1** in CH_2Cl_2 solution.

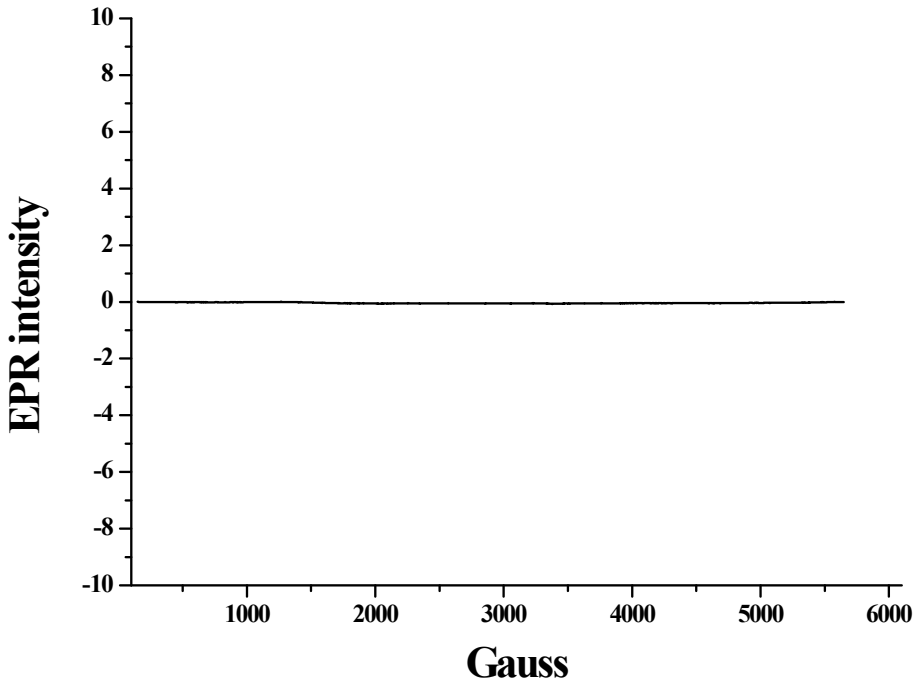

Figure S2. X-band EPR spectrum of the cubane-type cobalt(II) cluster **1** in CH_3CN/CH_2Cl_2 (1:1). The experimental parameters: microwave frequency = 9.646 GHz, microwave power = 1 mW, modulation frequency = 100 kHz, modulation amplitude = 10 G, gain = 1×10^4.