Nitric oxide and the Kagome lattice

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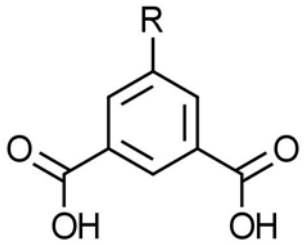
Kagome lattices derived from 5-substituted isophthalic acids (**I**, below) have been used as gas storage materials for CO and NO.[1] The NO storage capacity of six previously unreported Kagome frameworks of composition Cu(Rip)(H_2O) (R = Me, MeO, EtO, ^{n}PrO, ^{n}BuO or ^{i}BuO) has been investigated. Unsurprisingly, the length of the substituent alkyl or alkoxy chain was found to influence the NO release capacity of these materials, however the shorter substituent chain derivatives displayed the highest surface area and the lowest NO release capacity. *In situ* dehydration studies on single crystals of Cu(EtOip)(H_2O) and Cu(^{n}PrOip)(H_2O) were conducted and revealed that Cu(EtOip)(H_2O) undergoes a single-crystal-to-single-crystal transformation upon evacuation at room temperature.

These 6 Cu(Rip)(H_2O) materials have also been investigated for catalytic conversion of NO_2^- to NO.



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[1] **a)** H. Sato, W. Kosaka, R. Matsuda, A. Hori, Y. Hijikata, R. V. Belosludov, S. Sakaki, M. Takata, S. Kitagawa, *Science*, 2014, **343**, 167-170; **b)** M. I. H. Mohideen, B. Xiao, P. S. Wheatley, A. C. McKinlay, Y. Li, A. M. Z. Slawin, D. W. Aldous, N. F. Cessford,T. Düren, X. Zhao, R. Gill, K. M. Thomas, J. M. Griffin, S. E. Ashbrook, R. E. Morris, *Nature Chemistry*, **3**, 304–310 (2011)