**Redox-Switchable Cavitands: Molecular Grippers**

**Significance:** Here, a diquinone-based resorcin[4]arene cavitand goes from a kite to a vase form when reduced. The vase forms via hydrogen bonding between the central diols and the oxygens of the amides. This vase is stable even at \(-80 \, ^\circ\text{C}\) and can be used to capture the small molecule guests shown above. The molecules are shown in order of increasing association constant \(K_a\). The vase cavitand releases the guests upon oxidation.

**Comment:** Both the kite and vase form are stable in deuterated chloroform, tetrahydrofuran, and mesitylene. After two to four days, the reduced form reverts into the oxidized form. A crystal structure of the reduced form has a 7.3° cavity, which allows it to encapsulate the solvent molecule mesitylene, as well as the larger guest molecules.

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**Key words**
- diquinone-based cavitands
- molecular machines
- resorcin[4]arenes

**Category**
- Synthesis of Materials and Unnatural Products

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