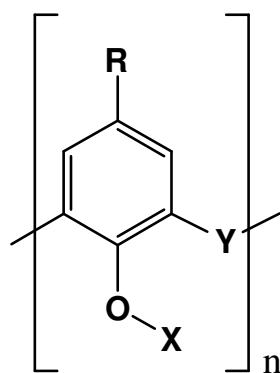


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## Calix[n]arene derivatives for gas storage

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The calix[n]arenes are versatile inclusion compounds (Scheme 1) comprise of cyclic, polyphenolic compounds that can be tailored synthetically by altering X, Y, R and n. In solid state, we found simple calixarenes are quite interesting for example separation of hydrogen from mixture of gases so our attention turned into the closely related calixarenes for sorption studies.



**n = 4, 5, 6, 8**

**Scheme 1**

With this little back ground on calixarenes and their uses in solid state, we designed and synthesized *tert*-butylsulfonylcalix[4]arene and Tetra-*p-tert*-butyl-tetramethoxysulfonylcalix[4]arene from *tert*-butylthiacalix[4]arene by oxidizing in the presence H<sub>2</sub>O<sub>2</sub> or NaBO<sub>3</sub> in exceptional yield.

Furthermore, asymmetric bridging of two calix[4]arene molecules to form a calixarene tubes with a larger and easily accessible cavity was also attempted to synthesize. Finally, H<sup>1</sup>NMR spectral and X- ray crystallographic modeling studies was done to reveal the conformational characteristics of the synthesized compounds.