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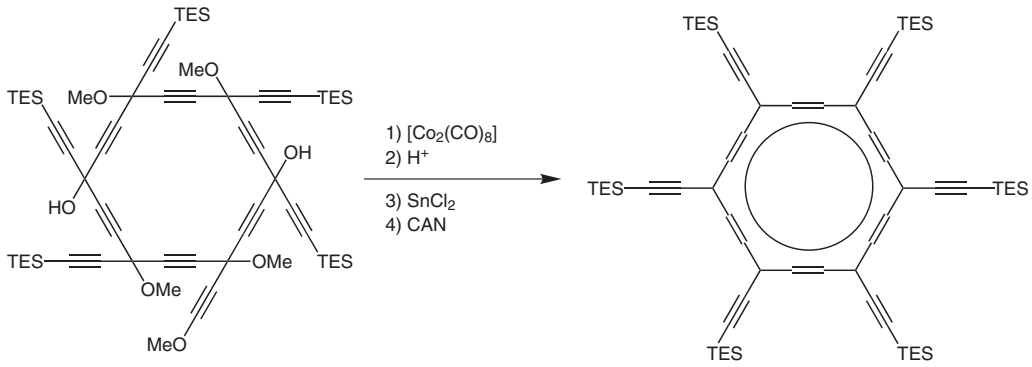
Hexasilylated Total Carbomer of Benzene
Angew. Chem. Int. Ed. **2007**, *46*, 4337-4341.

Carbomer of Benzene – A Tour de Force



Significance: Chauvin and co-workers report the first synthesis of hexaalkynyl [6]pericyclyne and carbobenzene. The selected method involves an [8+10] ring formation that proved to be efficient for the preparation of other [6]pericyclynes. The final step in the synthesis is a reductive aromatization that was achieved by the use of only two equivalents of $Co_2(CO)_8$. Subsequent treatment with $SnCl_2$/HCl and direct oxidative decomplexation with ceric ammonium nitrate (CAN) afforded the hexaalkynyl carbobenzene in 12% yield over three steps. The ^{1}H NMR spectrum showed that the triethylsilyl groups are particularly deshielded as a result of a remote ring-current effect. The attempted desilylation of hexa(trialkylsilyl) carbobenzene with tetrabutylammonium fluoride afforded only insoluble black material.

Comment: The synthesis of carbobenzene reported by the authors via a hexaalkynyl [6]pericyclyne demonstrates the power of organic chemistry to synthesize complex structures. The stereochemical resolution of hexaalkynyl [6]pericyclyne and its crystal packing open new horizons for the syntheses of novel expanded carbon nanotubes. The controlled desilylation of the reported carbobenzene could lead to a genuine carbomer of benzene or to novel carbon allotropes derived from deprotected carbobenzene. Carbobenzene-type systems might interact with gas molecules in a selective fashion and thereby have potential applications in sensors as previously reported for macrocycles (T. Naddo, Y. Che, W. Zhang, K. Balakrishnan, X. Yang, M. Yen, J. Zhao, J. S. Moore, L. Zhang *J. Am. Chem. Soc.* **2007**, *129*, 6978).

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Synfacts 2007, 8, 0813-0813 Published online: 24.07.2007
DOI: 10.1055/s-2007-968783; **Reg-No.:** S07207SF

Category
Synthesis of Materials and Unnatural Products

Key words
alkynes
aromaticity
carbobenzenes