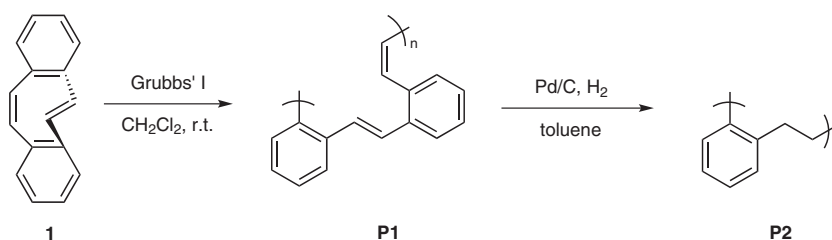
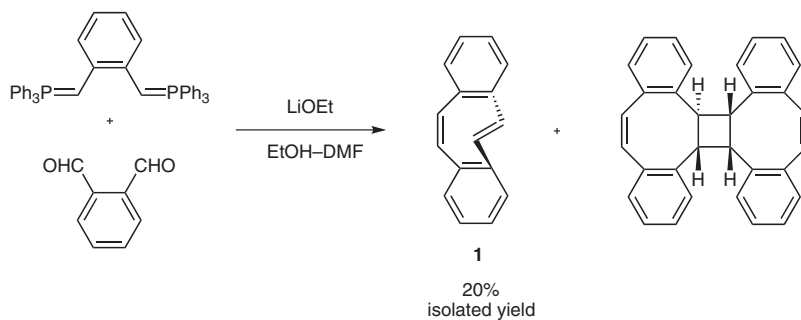


M. CARNES, D. BUCCELLA, J. DECATUR, M. L. STEIGERWALD, C. NUCKOLLS*
(COLUMBIA UNIVERSITY, NEW YORK, USA)
Helical (5*Z*,11*E*)-Dibenzo[*a,e*]cyclooctatetrene: A Spring-Loaded Monomer
Angew. Chem. Int. Ed. **2008**, *47*, 2982-2985.

A Spring-Loaded ROMPer



Significance: The [8]annulene **1**, with one double bond in the *trans* configuration was synthesized in 20% yield on a 20 mmol scale. Compound **1** was shown to be kinetically stable but thermodynamically unstable, with the *cis,cis* isomer being thermodynamically favored. Compound **1** winds into a helical conformation in the solid state and both enantiomers of **1** are present within the unit cell of a crystal. The calculated strain energy for **1** is 18 kcal/mol, which allows it to participate in ring-opening metathesis polymerization (ROMP), unlike its *cis,cis* isomer. Compound **1** forms living polymers when mixed with Grubbs' catalyst (1st gen.) and additional tricyclohexylphosphine ligand. In this fashion, regioregular poly(phenylene vinylene) (PPV) with all-*ortho* linkages was prepared and its hydrogenated derivate characterized by GPC and ¹H and ¹³C NMR spectroscopy.

Comment: The authors reinvestigated chemistry pursued by Wittig et al. (*Justus Liebigs Ann. Chem.* **1955**, 593, 127) and correctly identified a monomer that displays unique reactivity and yields interesting polymers. The regioselectivity of the ROMP imparts a well-defined secondary structure to **P1** that can be exploited in sensing or molecular recognition schemes.

SYNFACTS Contributors: Timothy M. Swager, Trisha L. Andrew
Synfacts 2008, 6, 0588-0588 Published online: 21.05.2008
DOI: 10.1055/s-2008-1067050; **Reg-No.:** S05208SF

2008 © THIEME STUTTGART • NEW YORK