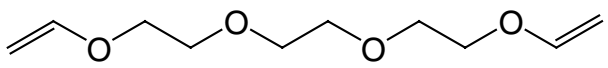
Supporting Information

General Procedures. All starting materials were commercially available and used after distillation or recrystallization. GLC analysis was performed with a flame ionization detector using a 0.2 mm x 25 m capillary column (OV-1). ^{1}H- and ^{13}C-NMR were measured at 400 MHz and 100 MHz, respectively, in $CDCl_3$ with Me_4Si as the internal standard. Infrared (IR) spectra were measured using NaCl plates.

General Procedure for the Reduction of Alcohol with Vinyl Acetate. A typical reaction procedure is as follows: To a toluene solution (1.0 mL) of $[IrCl(cod)]_2$ (0.01 mmol) and Na_2CO_3 (0.6 mmol) were added alcohol (1 mmol) and vinyl acetate (2 mmol) under Ar. The reaction mixture was stirred at 100 °C for 2 h. After quenching with wet ether, the product was isolated by column chromatography (230-400 mesh silica gel, *n*-hexane). After the reaction, the GC and GC-MS analyses were performed. The conversions and yields of products were estimated from the peak areas based on the internal standard technique using GC. The products **4**,[1] **6**,[2] **8**,[3] **9**,[4] **13**,[5] **15**,[6] **17**,[7] **21**,[8] **23**,[9] **27**[10] and **28**[11] were reported previously.

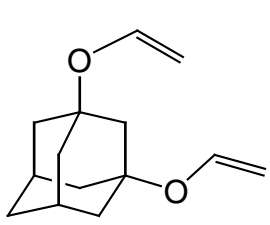
Spectral Data

{2-[2-(2-Vinyloxyethoxy)ethoxy]ethoxy}ethene (11):



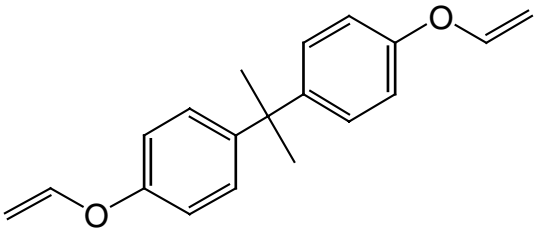
^{1}H NMR 6.50 (dd, *J* = 6.8 and 14.2 Hz, 1H), 4.19 (dd, *J* = 2.0 and 14.2 Hz, 1H), 4.01 (dd, *J* = 2.0 and 6.8 Hz, 1H), 3.83 (t, *J* = 4.9 Hz, 1H), 3.85 (d, *J* = 2.9 Hz, 2H), 3.73 (t, *J* = 4.9 Hz, 1H), 3.75 (d, *J* = 2.9 Hz, 1H), 3.69 (s, 2H); ^{13}C NMR 151.6, 86.5, 70.7, 69.6, 67.2; IR (neat) 2876, 1619, 1322, 1203, 1129 cm^{-1}.

1,3-Bis(vinyloxy)adamantane (19):



^{1}H NMR 6.45 (dd, *J* = 6.3 and 13.6 Hz, 1H), 4.45 (dd, *J* = 1.0 and 13.6 Hz, 1H), 4.07 (dd, *J* = 1.0 and 6.3 Hz, 1H), 2.38 (t, *J* = 2.9 Hz, 1H), 1.90 (s, 1H), 1.77 (s, 4H), 1.53 (t, *J* = 2.9 Hz, 1H); ^{13}C NMR 144.5, 91.5, 76.9, 46.1, 40.6, 34.8, 30.8; IR (neat) 2913, 1628, 1151, 1109, 1038 cm^{-1}. Anal. Calcd for $C_{14}H_{20}O_2$: C, 76.33; H, 9.15. Found: C, 76.34; H, 9.27.

Bisphenol-A divinyl ether (25):



^{1}H NMR 7.18-7.14 (m, 3H), 6.91-6.88 (m, 2H), 6.62 (dd, *J* = 6.3 and 13.7 Hz, 1H), 4.73 (dd, *J* = 1.5 and 13.7 Hz, 1H), 4.39 (dd, *J* = 1.5 and 6.3 Hz, 1H), 1.65 (s, 3H); ^{13}C NMR 154.6, 148.2, 145.3, 127.8, 116.4, 94.7, 42.1, 31.0; IR (neat) 3036, 1644, 1504, 1385, 964, 836, 552 cm^{-1}. Anal. Calcd for $C_{14}H_{20}O_2$: C, 81.40; H, 7.19. Found: C, 81.29; H, 7.19.

References

1 Cabezas, J. A.; Oehlschlager, A. C. *Synthesis*, **1994**, 432.

2 (a) Gao, S.-Y.; Ko, S.; Lin, Y.-L.; Peddinti, R. K.; Liao, C.-C. *Tetrahedron*, **2001**, *57*, 297. (b) Sierra, M. A.; del Amo, J. C.; Mancheno, M. J.; Gomez-Gallego, M. *J. Am. Chem. Soc.,* **2001**, *123*, 851.

3 Auner, N.; Heikenwaelder, C-R.; Herrschaft, B. *Organometallics*, **2000**, *19*, 2470.

4 Zhang, H.; Ruckenstein, E. *J. Polym. Sci., Part A: Polym. Chem.,* **2000**, *38*, 3751.

5 (a) Uccello-Barretta, G.; Bernardini, R.; Balzano, F.;Salvadori, P. *J. Org. Chem.,* **2001**, *66*, 123. (b) Reeder, L. M.; Hegedus, L. S. *J. Org. Chem.,* **1999**, *64*, 3306.

6 McCann, J. L.; Rauk, A.; Wieser, H. *J. Mol. Struct.,* **1997**, 408, 417.

7 (a) Marko, I. F.; Evans, G. R. *Bull. Soc. Chim. Belg.,* **1994**, 103, 295. (b) Marko, I. E.; Evans, G. R. *Tetrahedron Lett.,* **1994**, *35*, 2771.

8 (a) Strazisar, S. A.; Wolczanski, P. T. *J. Am. Chem. Soc.*, **2001**, *123*, 4728. (b) Jensen, K. B.; Roberson, M.; Jorgensen, K. A. *J. Org. Chem.,* **2000**, *65*, 9080. (c) Paganelli, S.; Zanchet, M.; Marchetti, M.; Mangano, G. *J. Mol. Catal. A: Chem.,* **2000**, *157*, 1.

9 (a) Afonin, A. V.; Vashchenko, A. V.; Takagi, T.; Kimura, A.; Fujiwara, H. *Can. J. Chem,*. **1999**, 77, 416. (b) Afonin, A. V.; Vashchenko, A. V.; Fujiwara, H. *Bull. Chem. Soc. Jpn.*, **1996**, *69*, 933.

10 (a) Aversa, M. C.; Barattucci, A.; Bonaccorsi, P.; Giannetto, P.; Policicchio, M. *J. Org. Chem.,* **2001**, *66*, 4845. (b) Yus, M.; Gutierrez, A.; Foubelo, F. *Tetrahedron*, **2001**, *57*, 4411. (c) Carter, C. A. G.; Vogels, C. M.; Harrison, D. J.; Gagnon, M. K. J.; Norman, D. W.;

Langler, R. F.; Baker, R. T.; Westcott, S. A. *Organometallics*, **2001**, *20*, 2130.

11 Laba, V. I.; Kron, A. A.; Prilezhaeva, E. N. *Izv. Akad. Nauk SSSR, Ser. Khim.,* **1976**, *7*, 1546.