

Supplementary data

Liquid Crystalline Mixtures with Induced Polymorphic Smectic Phases Targeted for Energy Investigations

Salma A. Al-Zahrani ¹, Mohd Taukeer Khan ², Violeta Jevtovic ¹, Najat Masood ¹, Yassin Aweis Jeilani ¹, Hoda A. Ahmed ^{3,4,*} and Fatimah M. Alfaidi ⁴

¹ Chemistry Department, Faculty of Science, University of Ha'il, P.O. Box 2440, Ha'il 81451, Saudi Arabia; s.alzahrane@uoh.edu.sa (S.A.A.-Z.); v.jevtovic@uoh.edu.sa (V.J.); ne.ebrahim@uoh.edu.sa (N.M.); ya.jeilani@uoh.edu.sa (Y.A.J.)

² Department of Physics, Faculty of Science, Islamic University of Madinah, Al-Madinah Al-Munawwarah 42351, Saudi Arabia; khanmtk@iu.edu.sa

³ Department of Chemistry, Faculty of Science, Cairo University, Cairo 12613, Egypt

⁴ Chemistry Department, Faculty of Science, Taibah University, Yanbu 46423, Saudi Arabia; fatimahm.alfaidi@gmail.com

* Correspondence: ahoda@sci.cu.edu.eg

4-Biphenyle -4'-hexyloxybenzenamines (I6)

Yield = 95%, IR (KBr, cm⁻¹): 3041, 2952, 2853 (C-H), 1626 (CH=N), 1597, 1539, 1511, 1408, 1361, 1270, 1183, 1118, 887, 822, 808, 721; ¹H NMR (400 MHz, CDCl₃, δ ppm): 0.93 (t, J = 7.2 Hz, 3H), 1.34–1.39 (m, 4H), 1.45–1.52 (m, 2H), 1.78–1.85 (m, 2H), 3.99 (t, J = 6.4 Hz, 2H), 6.96 (dd, J = 6.8 Hz, 2H), 7.29 (dd, J = 6.4 Hz, 2H), 7.57 (dd, J = 4.4 Hz, 2H), 7.77 (d, J = 8.0 Hz, 2H), 8.01 (d, J = 8.4 Hz, 2H), 8.55 (s, 1H), 8.71 (dd, J = 4.4 Hz, 2H); ¹³C NMR (100 MHz, CDCl₃, δ ppm): 14.10, 22.65, 25.76, 29.28, 31.63, 68.29, 115, 121.57, 122.33, 127.35, 129.24, 137.12, 140.33, 144.30, 147.46, 150.42, 157.00, 158.17.

4-Biphenyle -4'-octyloxybenzenamines (I8)

Yield = 96%, IR (KBr, cm⁻¹): 3045, 2951, 2852 (C-H), 1622 (CH=N), 1594, 1533, 1505, 1402, 1361, 1275, 1181, 1117, 889, 822, 804, 721; ¹H NMR (400 MHz, CDCl₃, δ ppm): 0.91 (t, J = 6.8 Hz, 3H), 1.31–1.37 (m, 8H), 1.45–1.52 (m, 2H), 1.78–1.85 (m, 2H), 3.99 (t, J = 6.8 Hz, 2H), 6.96 (dd, J = 6.8 Hz, 2H), 7.29 (dd, J = 6.8 Hz, 2H), 7.57 (dd, J = 4.4 Hz, 2H), 7.75 (d, J = 8.0 Hz, 2H), 8.02 (d, J = 8.4 Hz, 2H), 8.55 (s, 1H), 8.71 (dd, J = 4.4 Hz, 2H); ¹³C NMR (100 MHz, CDCl₃, δ ppm): 14.16, 22.70, 26.08, 29.28, 29.32, 29.41, 31.85, 68.30, 115.00, 121.57, 122.33, 127.35, 129.24, 137.13, 140.34, 144.31, 147.46, 150.42, 157.00, 158.17.

4-Biphenyle -4'-hexadecyloxybenzenamines (I16)

Yield = 91%, IR (KBr, cm⁻¹): 3038, 2955, 2847 (C-H), 1618 (CH=N), 1595, 1534, 1501, 1405, 1365, 1277, 1182, 1115, 887, 822, 804, 720; ¹H NMR (400 MHz, CDCl₃, δ ppm): 0.90 (t, J = 6.4 Hz, 3H), 1.28 (m, 26H), 1.73–1.85 (m, 2H), 4.00 (t, J = 6.4 Hz, 2H), 6.96 (dd, J = 8.4 Hz, 2H), 7.29 (d, J = 8.4 Hz, 2H), 7.57 (d, J = 5.6 Hz, 2H), 7.77 (d, J = 8.4 Hz, 2H), 8.02 (d, J = 8.0 Hz, 2H), 8.56 (s, 1H), 8.71 (d, J = 5.6 Hz, 2H).