

Thiophene-Based Conducting Polymers & Precursors

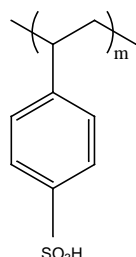
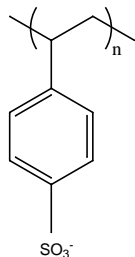
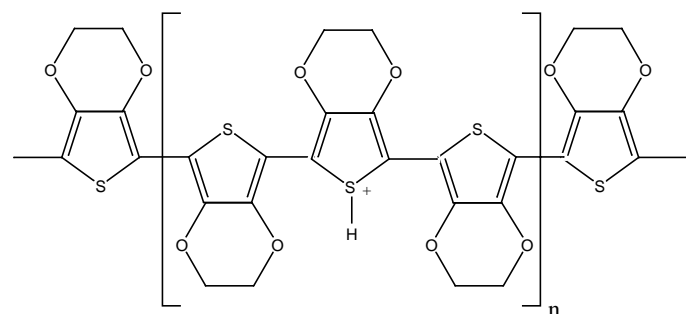
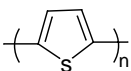
Polythiophenes are one of the more extensively studied classes of π -conjugated systems. Both the conducting and semiconducting forms are very stable and readily characterized. Applications of these materials in light emitting devices,¹ field effect transistors,² electrochromic camouflage coatings,³ as well as other molecular electronic devices, have been fueled by the improved solubility and processability of mono-, di-, and ring-substituted polythiophenes, while simultaneously allowing the electronic band gap to be tuned.^{4,7}

Aldrich offers a large selection of **conducting polymers** and **precursors** to assist you in your research. A sampling of our latest additions from the **class of polythiophenes** are highlighted below. For a comprehensive list, search our product database on the Web at www.sigma-aldrich.com or contact us via email at aldrich@sial.com.

New! Conducting Polymers

52,593-6 Poly(thiophene-2,5-diyl), Br terminated
Undoped form

1g



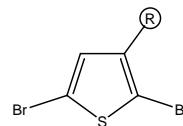
48,309-5 Poly(styrenesulfonate)/poly(2,3-dihydrothieno[3,4-*b*]-1,4-dioxin), 1.3 wt. % dispersion in water
[or Poly(3,4-oxyethyleneoxythiophene)/poly(styrene sulfonate); PEDT/PSS]
Doped form

250g

In addition, Aldrich offers highly regiocontrolled alkyl-substituted polythiophenes (P3AT) with >98.5% regioregular head-to-tail linkages and >99% regiorandom (1:1 HT/HH) linkages. For product information, visit our Web site at www.sigma-aldrich.com/polymer.

References (1) Berggren, M. et al. *Nature* **1994**, 372, 444. (2) Bao, Z.; Lovinger, A.J. *Chem. Mater.* **1999**, 11, 2607. (3) Sapp, S.A. et al. *ibid.* **1998**, 10, 2101. (4) Heywang, G.; Jonas, F. *Adv. Mater.* **1992**, 4, 116. (5) McCullough, R.D. et al. *J. Org. Chem.* **1993**, 58, 904. (6) Chen, T.-A. et al. *J. Am. Chem. Soc.* **1995**, 117, 233. (7) Blohm, M.L. et al. *Macromolecules* **1993**, 26, 2704.

New! Precursors



52,549-9 2,5-Dibromo-3-butylthiophene, 96%

R = -CH₂(CH₂)₂CH₃

1g

45,637-3 2,5-Dibromo-3-hexylthiophene, 97%

R = -CH₂(CH₂)₄CH₃

250mg; 1g

52,548-0 2,5-Dibromo-3-octylthiophene, 96%

R = -CH₂(CH₂)₆CH₃

1g

45,638-1 2,5-Dibromo-3-decylthiophene, 97%

R = -CH₂(CH₂)₈CH₃

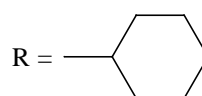
250mg; 1g

45,640-3 2,5-Dibromo-3-dodecylthiophene, 97%

R = -CH₂(CH₂)₁₀CH₃

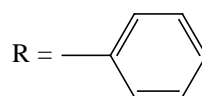
250mg; 1g

52,551-0 2,5-Dibromo-3-cyclohexylthiophene, 97%



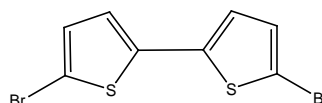
1g

52,550-2 2,5-Dibromo-3-phenylthiophene, 97%



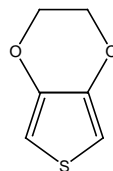
1g

51,549-3 5,5'-Dibromo-2,2'-bithiophene, 99%



1g; 5g

48,302-8 2,3-Dihydrothieno[3,4-*b*]-1,4-dioxin
(or 3,4-Ethylene dioxothiophene)



10g



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