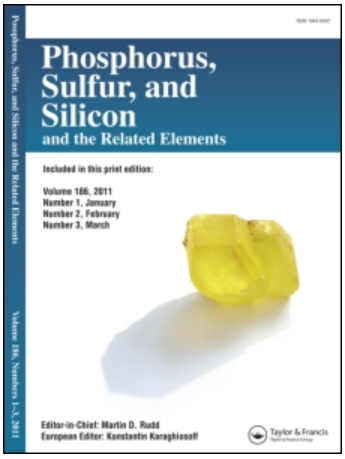

Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

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Online publication date: 27 October 2010

To cite this Article Iliescu, Smaranda , Ilia, Gheorghe , Dehelean, Gheorghe , Popa, Adriana , Macarie, Lavinia , Păcureanu, Liliana and Pascariu, Aurelia(2002) 'New Polyphosphonates Obtained by Vapor-Liquid Interfacial Polycondensation', Phosphorus, Sulfur, and Silicon and the Related Elements, 177: 8, 2051 — 2052
To link to this Article: DOI: 10.1080/10426500213385
URL: http://dx.doi.org/10.1080/10426500213385

Phosphorus, Sulfur and Silicon, 2002, Vol. 177:2051–2052

1042-6507/02 $12.00 + .00
DOI: 10.1080/10426500290094783

NEW POLYPHOSPHONATES OBTAINED BY VAPOR-LIQUID INTERFACIAL POLYCONDENSATION

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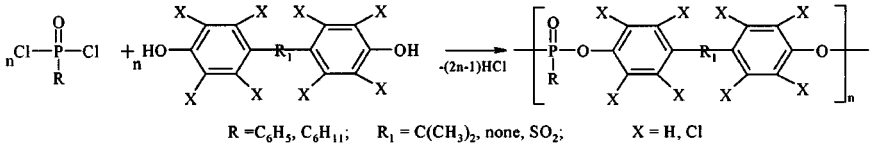
(Received July 29, 2001; accepted December 25, 2001)

It has been reported that flame retardant polyphosphonate was prepared by vapor-liquid interfacial polycondensation of cyclohexylphosphonic dichloride with bisphenol A.[1] New polyphosphonates of high molecular weights ($>10^4$) were prepared from different phosphonic dichlorides (PD) [cyclohexyl or phenylphosphonic dichloride, CPD, PPD] and bisphenols (B) having rigid ring structures: [bisphenol A (BA), tetrachlorinated bisphenol A (BACl), 4,4′-biphenol (BP), 4,4′-sulfonyldiphenol (SDP)] by vapor-liquid interfacial polycondensation. The following reaction conditions were used: 1M $NaOH_{aq}$, molar ratio PD : B = 2.7 : 1, time 50–60 min at 55°C (reaction 1). Molecular weights and glass transition temperatures are presented in Table I. Solubility of the polyphosphonates was studied for following solvents: N,N′-dimethylformamide, pyridine, tetrahydrofuran, and chloroform.



R = C_6H_5, C_6H_{11}; R_1 = $C(CH_3)_2$, none, SO_2; X = H, Cl

(1)

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TABLE I Characterization of Polyphosphonates

PD/B Propr.	CPD/ BA	CPD/ BACl	CPD/ BP	CPD/ SPD	PPD/ BA	PPD/ BACl	PPD/ BP	PPD/ SPD
Mn	9300	8100	9850	10500	10150	8300	10800	11200
Mw	13500	9125	14100	15800	14850	9520	15300	15480
Tg, °C	95	78	120	132	99	80	128	139

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[1] S. Iliescu, G. Ilia, A. Popa, G. Dehelean, L. Macarie, L. Păcureanu, and N. Hurduc, *Polym. Bull*., **46,** 165–174 (2001).