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### New Polyphosphonates Obtained by Vapor-Liquid Interfacial Polycondensation

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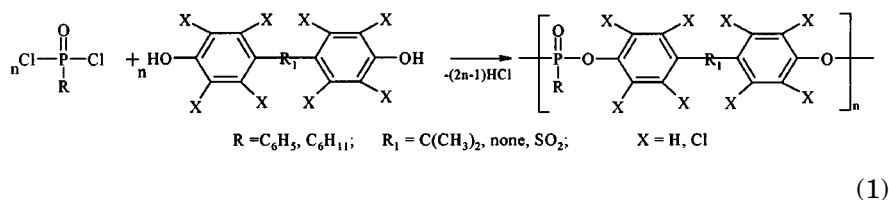
## NEW POLYPHOSPHONATES OBTAINED BY VAPOR-LIQUID INTERFACIAL POLYCONDENSATION

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It has been reported that flame retardant polyphosphonate was prepared by vapor-liquid interfacial polycondensation of cyclohexylphosphonic dichloride with bisphenol A.<sup>1</sup> 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<sub>aq</sub>, 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.



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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
T <sub>g</sub> , °C	95	78	120	132	99	80	128	139

**REFERENCE**

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