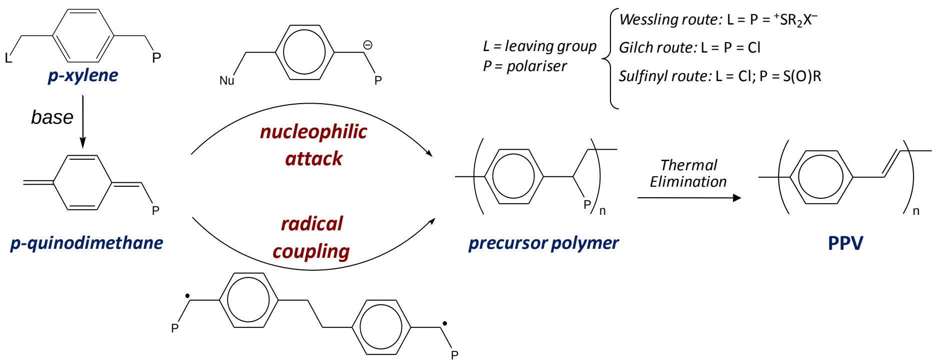
PPV Polymerization via the Gilch Route: Effect of Diradical Character of Monomers and Dimers

J. Djurdjević,[a] S. Catak, [a,b] S. Wouters,[a] J. Romanova,[c] A. Shimizu,[c] B. Champagne,[c] T. Junkers,[d] D. Vanderzande,[d] D. Van Neck,[a] M. Waroquier,[a] V. Van Speybroeck[a]

[a]*Center for Molecular Modeling, Ghent University, Technologiepark 903, B-9052 Zwijnaarde, Belgium*
[b]*Bogazici Univerity, Chemistry Department, Bebek, Istanbul, 34342, Turkey*
[c]*Laboratoire de Chimie Théorique, University of Namur, Rue de Bruxelles 61, B-5000 Namur, Belgium*
[d]*Organic and Bio-Polymer Chemistry, University of Hasselt, Agoralaan, Building D, B-3590 Diepenbeek, Belgium*

Despite various studies on the polymerization of PPV through different precursor routes, detailed mechanistic insight on the level of the individual reactions and intermediates is still incomplete. The present study aims to gain more insight into the polymerization of PPV *via* the Gilch route –known to exclusively occur through a radical mechanism– and identify reactions that lead to side products, such as the p-cyclophane system.



Furthermore, the effect of the nature of the p-quinodimethane system on PPV polymerization was assessed with respect to the size of the aromatic core as well as heteroatoms in the conjugated system. The nature of the aromatic core and the specific substituents may alter the electronic structure of the p-quinodimethane monomers; hence affect the mechanism of polymerization. More specifically, it is suggested that the driving force for radical formation, is the re-aromatization of the p-quinodimethane systems.

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