Additions and Corrections

Generation by Electron Transfer of an Emitting State Not Observed by Photoexcitation in a Linked $Ru(bpy)_3^{2+}$−Methyl Viologen [*J. Am. Chem. Soc.* **1996**, *118*, 3656−3660]. XIAOHONG XU, KEVIN SHREDER, BRENT L. IVERSON, AND ALLEN J. BARD*

In experiments on the electrogenerated chemiluminescence (ECL) of methyl viologen linked to $Ru(bpy)_3^{2+}$ by linkers of different lengths designed to extend the work of this paper, we have found that the reduced and excited states of the complexes are vey sensitive to the presence of small amounts of oxygen in both aqueous and MeCN solutions. In the rigorous absence of dissolved oxygen, the observed ECL is near background levels. We now feel that the observed ECL emission results from deactivation of the methyl viologen quenching center by reaction with oxygen. Details of this study will be published elsewhere.[1]

(1) Clark, C.; Debad, J.; Mallouk, T.; Bard, A. J. Unpublished experiments.

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The Presence of Water in the Common $CeCl_3$/RLi Alkylation System [*J. Am. Chem. Soc.* **1996**, *118*, 4581−4584]. WILLIAM J. EVANS,* JAY D. FELDMAN, AND JOSEPH W. ZILLER

The structure of $[CeCl_3(H_2O)(THF)]_n$ has been independently determined: Hubert-Pfalzgraf, L. G.; Machado, L.; Vaissermann, J. *Polyhedron* **1996**, *15*, 545−549.

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Infrared Spectroscopic Characterization of Cyanocuprates [*J. Am. Chem. Soc.* **1996**, *118*, 8808−8816]. HUI HUANG, KHRIS ALVAREZ, QIANG CUI, TERENCE M. BARNHART, JAMES P. SNYDER,* AND JAMES E. PENNER-HAHN*

The third author's name is Qiang Cui instead of Qiang Lui as printed.

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Book Reviews

Polymerization Process Modeling. By Neil A. Dotson (Eastman Chemical Company), Rafael Galvan (Dow Chemical Company), Robert L. Laurence (University of Massachusetts), and Matthew Tirrell (University of Minnesota). VCH: New York. 1996. xvi + 371 pp. $79.95. ISBN 1-56081-693-7.

The long-awaited Laurence and Tirrell book on polymerization reaction engineering is finally out! But in its long gestation period (this book was at least fifteen years in the making), it has metamorphosed. Two new authors have been added (each in turn making a valiant effort at editing and completing earlier drafts), and the focus of the text has narrowed from polymerization reaction engineering to the more specific *Polymerization Process Modeling*. Still, it has been worth the wait. I have taught from manuscripts of this text as long ago as twelve years, and I am pleased to report that the final edition lives up to the quality of the earlier drafts. In addition, to my knowledge, this is the first significant text of its type to be published since Principles of Polymerization by Biesenberger and Sebastian in 1983. We are fortunate now to have two comprehensive views on the subject instead of one.

The text is divided into seven chapters covering various areas of polymerization modeling. The emphasis is on the mathematical description of the evolution of the microstructure of the polymer during polymerization. By microstructure is meant molecular weight distribution, copolymer composition and sequence distribution, degree of branching, etc. Chapter One is an introduction to the field. It attempts to set the background for the rest of the text in such a way that very little knowledge of polymer science is required to understand the following chapters. However, in order to appreciate the following chapters, a polymer science course at the level of Billmeyer or a polymer chemistry course at the level of Odian is desirable. Chapter Two develops the mathematics of step growth polymerization. All of the necessary phenomena are treated (capping, reversible polymerization, etc.) in a rigorous manner. Chapter Three does a nice job of a parallel development of chain growth polymerization. Chapter Four treats the mathematics of copolymerization. This treatment goes beyond the copolymerization equation found in standard polymer science texts. It treats the penultimate model, and lays out the kinetic treatment for copolymerization in which each chain is described by the total number of monomer "A" and "B" molecules incorporated, and by the nature of the reactive end group (a "doubly" distinguished mass balance model).

Chapter Five treats nonlinear polymerization in a rather comprehensive way. The inherent difference between branching and crosslinking is described nicely, in both text and mathematics. The numerical fractionation treatment of gelation by Teymour is not included. It would be nice if it were. Chapter Six discusses the impact of reactor configuration (batch, semibatch, continuous plug flow, continuous back mixed, etc.) on the molecular weight and copolymer composition distributions. This is a good treatment, and really illustrates the concept that polymers are "products by process". Chapter Seven covers heterogenous polymerization. The treatment of suspension polymerization is quite good. The treatment of emulsion polymerization deals with Smith Ewart kinetics and some of the refinements thereto. It would have been nice if a description of the two main modeling techniques for emulsion polymerization (age distribution and particle size distribution models) had been included. The treatment of coordination polymerization is strictly descriptive. It does not even include the kinetic developments found in an introductory polymer science book, much less the mass and energy balance framework necessary to describe a Ziegler Natta polymerization reactor.

This book is like most textbooks in that it is quite strong in the topics central to the theme of the book (the mathematical description of microstructure development) and somewhat weaker in the peripheral topics (heterogenous polymerization). One might wish for a more comprehensive treatment of polymerization reaction engineering (including mixing and thermal effects, and reactor optimization and control), but the authors have limited themselves to *Polymerization Process Modeling*. They have succeeded well in delivering what the title promises. It is a good book to teach from; the mathematics is clearly laid out, and each derivation is carefully motivated. As someone who has taught this material many times (often from earlier drafts of this book) and has written an abbreviated treatment of the subject, I can say that this is a solid text that will form one of the pillars of the science and engineering of polymerization for many years to come.

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