## Making an imPACt

**Critically Evaluated Propagation** Rate Coefficients in Free-Radical Polymerizations: Part III. Methacrylates with Cyclic Ester Groups (IUPAC Technical Report)

## S. Beuermann

Pure and Applied Chemistry Vol. 75, No. 8, pp. 1091-1096 (2003)

Modeling and optimization of free-radical polymerization processes requires the knowledge of accurate individual rate coefficients for the reactions occurring during a polymerization. Pulsed laser-initiated polymerization in conjunction with polymer analysis by sizeexclusion chromatography has proven to be a valuable technique to derive propagation rate coefficients  $k_{\rm p}$ . The IUPAC Working Party on Modeling of Polymerization Kinetics and Processes has reported critically evaluated rate coefficient data for styrene and alkyl methacrylates. This paper continues the series by reporting propagation rate coefficients,  $k_{\rm p}$ , as a function of temperature, for bulk free-radical homopolymerizations of oxiranylmethyl, cyclohexyl, and benzyl methacrylate at ambient pressure and low conversion. For each monomer, the rate coefficients have been independently measured in two laboratories. The data determined from experiments carried out in independent laboratories obey the consistency criteria established for this technique. The rate coefficients for the three monomers are well represented by a single Arrhenius relation.



www.iupac.org/publications/pac/2003/7508/7508x1091.html

## Minimum Requirements for Reporting Analytical Data for **Environmental Samples (IUPAC** Technical Report)

H. Egli, M. Assenakis, H. Garelick, R. Van Grieken, W. Peijnenburg, L. Klasinc, W. Kördel, N. Priest, and T. Tavares

Pure and Applied Chemistry Vol. 75, No. 8, pp. 1097-1106 (2003)

Environmental analytical data are generated to investigate how human activities influence the environment to develop, calibrate and validate environmental models, to test whether either standards or quality criteria are

exceeded, and to deduce whether there is a potential or actual risk to ecosystems. In addition to the many purposes they serve, published environmental data often attract extra attention from the general press and public, and may even be used to support advisory or regulatory measures. It is, therefore, in the interest of all involved parties to endeavour to publish only data with a proven quality, known uncertainty, and with sufficient additional information about the sample history.

Under the umbrella of the IUPAC Chemistry and the Environment Division, a project team of scientists from different fields of interests have published this paper to provide recommendations for the minimum requirements for reporting environmental-analytical data. Irrespective of the analyte(s) and the goal of the study, the recommendations give general guidance regarding the minimum information that should be provided to adequately describe the sampling strategy, the method of sampling, the sample properties, all handling between sampling and analysis (including storage conditions, pre-treatments, homogenization, sub-sampling), and the analytical methodology (including calculation and validation procedures). The paper provides specific guidance on the environmental compartments: soil, pore water, ground water, inland surface water, sediment, seawater, precipitation water, and air.

Environmental analytical chemists are the intended audience for this guidance paper. If they follow the recommendations, the utility of the published data for the scientific community would be much improved. Full and adequate use of data is only possible if sufficient information is provided. Editors of journals and reviewers of papers submitted for publication are also encouraged to take into consideration the guidance paper. They are key players in the entire publication process and, in taking seriously their responsibility for a high scientific standard of published articles, should consider refusing papers containing environmental-analytical results if the minimum requirements are not met.



www.iupac.org/publications/pac/2003/7508/7508x1097.html

## **Atomic Weights of the Elements** 2001 (IUPAC Technical Report)

R. D. Loss

Pure and Applied Chemistry Vol. 75, No. 8, pp. 1107-1122 (2003)

The Commission on Atomic Weights and Isotopic