40% conversion, k_t began to decrease rapidly toward 7.94 $\times 10^3$ dm^3 mol^{-1} s^{-1} at 93.8% conversion, which is less than the k_t at 6.1% conversion by a factor of 2×10^3. The steep decrease in k_t corresponded to an increase in the viscosity of the polymerization mixture.

Thus, the present study revealed that the concentration of the poly(St) radical gradually increased to 30% conversion with small changes in the rate constants. The abrupt decrease in k_t arising from an enhanced viscosity of the polymerization system results in acceleration of the polymerization and an increase in $\bar{M}_n$ of the polymer at high conversions. As a distinction from MMA polymerization,[6,7] the present polymerization yielded a poly(St) much shorter than poly(MMA). The chain length of the poly(St) radical was probably too short to suppress diffusion, forming an entanglement.[13] Therefore, acceleration of polymerization caused by a considerable decrease in k_t is observed in the final stages of St polymerization and the conversion reaches almost 100%. While the change in k_p with conversion to MMA polymerization has been interpreted by the restricted diffusion of the polymer radical and monomer arising from lowering the T_g,[7,8] k_p remained constant from the initial to final stages of St polymerization.

Buback and Schweer have concluded that k_p for ethylene is identical with the rate constant for addition of the C_{10} radical or above to ethylene irrespective of chain length.[14] However, if a slower diffusion of the poly(St) radical, which is less reactive than the poly(ethylene) radical, could differentiate from a low molecular weight homologue, the k_p and k_t values at the low-conversion range would exhibit dependencies on chain length.

References and Notes

(1) Berger, K. C.; Meyerhoff, G. In *Polymer Handbook*, 3rd ed.; Brandrup, J., Immergut, E. H., Eds.: Wiley: New York, 1989; p II/6.
(2) Bresler, S. E.; Kazbekov, E. N.; Fomichev, V. N.; Shadrin, V. N. *Makromol. Chem.* **1972**, *157*, 167.
(3) Brelser, S. E.; Karzbekov, E. N.; Shadrin, V. N. *Makromol. Chem.* **1974**, *175*, 2875.
(4) Kamachi, M. *Adv. Polym. Sci.* **1987**, *82*, 207.
(5) Carswell, T. G.; Hill, D. J. T.; Hunter, D. S.; Pomery, R. J.; O'Donnell, J. H.; Windor, C. L. *Eur. Polym. J.* **1990**, *26*, 541.
(6) Garrett, R. W.; Hill, D. J. T.; O'Donnell, J. H.; Pomery, P. J.; Winzor, C. L. *Polym. Bull.* **1989**, *22*, 611.
(7) Zhu, S.; Tian, Y.; Hamielec, A. E.; Eaton, D. R. *Macromolecules* **1990**, *23*, 1144.
(8) Sack, R.; Schulz, G. V.; Meyerhoff, G. *Macromolecules* **1988**, *21*, 3345.
(9) Smith, P.; Gilman, L. B.; Stevens, R. D.; de Hargrave, C. V. *J. Magn. Reson.* **1978**, *29*, 545.
(10) Soh, S. K.; Sundberg, D. C. *J. Polym. Sci.: Polym. Chem. Ed.* **1982**, *20*, 1345.
(11) Kuhn, R.; Trischmann, H. *Monatsch. Chem.* **1964**, *95*, 457.
(12) Buback, M.; Garcia-Rubio, L. H.; Gilbert, R. G.; Napper, D. H.; Guillot, J.; Hamielec, A. E.; Hill, D.; O'Diriscoll, K. F.; Olaj, O. F.; Shen, J.; Solomon, D.; Moad, G.; Stickler, M.; Tirrell, M.; Winnik, M. A. *J. Polym. Sci., Part C: Polym. Lett.* **1988**, *26*, 293.
(13) Mita, I.; Horie, K. *J. Macromol. Sci.* **1987**, *C27*, 91.
(14) Buback, M.; Schweer, J. *Z. Phys. Chem. (Neue Folge)* **1989**, *161*, 153.

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CORRECTIONS

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An error in computation was pointed out by Dr. Karen I. Winey, AT&T, Bell Laboratories, Murray Hill, NJ. The numerical values of Ψ_{PI} (SC) in Table II should read 0.1911 for B2 and 0.0806 for B2:H6 = 1:1, instead of 0.0678 and 0.0284, respectively, which suggests that the spheres are packed in a SC lattice rather than a BCC lattice for B2:H6 = 1:1. The packing symmetry of spheres in B2 cannot be uniquely determined by the volumetric consideration of this kind. This change does not alter the conclusions of the article.