Electronic Supplementary Material (ESI) for Polymer Chemistry.

Side Chain Thiol-functionalized Poly(ethylene glycol) by Post-polymerization Modification of Hydroxyl Groups: Synthesis, Crosslinking and Inkjet Printing

Supporting Information

Alexander Southan, Eva Hoch, Veronika Schönhaar, Kirsten Borchers Christian Schuh, Michaela Müller, Monika Bach and Günter E.M. Tovar

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For deriving equation 1, the intensity of one proton in the ^{1}H NMR spectra of the tosylated polymers is assumed to equal the intensity Int(Ts) of the tosylate related signal intensities (signals a', c', d' and e' in Figure 1) divided by 9.

Each repeating unit with a tosylate group has 3 backbone protons. The signal intensity Int(EO) corresponding only to EO repeating units can then be expressed as (with the intensity Int(BB) of the total polymer backbone signals, signal b' in Figure 1):

$$Int(EO) = Int(BB) - 3 \cdot \frac{Int(Ts)}{9}$$

For each repeating unit carrying a tosylate group, the number n(EO) of EO repeating units can be expressed as:

$$n(EO) = \frac{Int(EO)}{4 \cdot \frac{Int(Ts)}{9}}$$

The percentage $p\%_{Ts}$ of repeating units carrying a tosylate group can then be calculated as:

$$p\%_{Ts} = \frac{1}{n(EO) + 1}$$

Rearranging yields equation 1.

Equation 2 can be derived in a similar manner assuming that each side chain with a triphenylmethyl group has 17 protons (signals a'', c'' and d'' in Figure 1).