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Preparation of PHSA-PMMA stabilizer for model hard sphere systems ANDREW HOLLINGSWORTH, New York University, WILLIAM RUSSEL, Princeton University, CARLOS VAN KATS, ALFONS VAN BLAADEREN, Utrecht University — Sterically-stabilized colloidal particles are an excellent model hard-sphere system used by many groups. One of the original stabilizers used for such systems was developed and patented by ICI more than 30 years ago. It consists of a 'comb-like' stabilizer of a poly(12-hydroxystearic acid) which is soluble in aliphatic hydrocarbons. These pendant PHSA chains are grafted to an insoluble poly(methyl methacrylate) backbone that strongly adsorbs to polymer particles and thus provides a means of anchoring stabilizer to particle surfaces. Unfortunately, the PHSA-g-PMMA stabilizer is not commercially available. Furthermore, the three-step procedure (Antl, et al. 1986) is generally regarded by non-chemists as technique intensive and time-consuming. We have systematically studied the PHSA-PMMA stabilizer synthesis with the goal of taking the mystery out of the protocol and making the entire synthesis reproducible. Several important details, not published in the literature, will be discussed, along with the analytical results from mass spectroscopy, proton NMR, acid titration and gel permeation chromatography, all of which were used to characterize the polymer and its precursors.

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