

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Preparation of PVMS-*b*-PMMA block copolymer with potential for oil-water separation¹ BARAKA LWOYA, MD UDDIN, SOURAV CHATTERJEE, JULIE ALBERT, Tulane University — We report herein the synthesis of poly(vinylmethylsiloxane-*block*-methyl methacrylate) (PVMS-*b*-PMMA) by a combination of anionic synthesis of PVMS, ATRP of PMMA, and then co-joining the end-group functionalized blocks with a click reaction. In using this combination of methods, we were able to effectively control both molecular weight and polydispersity in polymers that were otherwise challenging to synthesize by sequential block addition. Following thin film nanostructure alignment by either thermal or solvent annealing, exposure to UV light cross-links the siloxane copolymer block, which imparts mechanical integrity, and degrades the sacrificial PMMA block in a single step to produce a nanoporous film. The hydrophobicity and nano-porosity of these films are desirable characteristics for their application as membranes for oil/water separation.

¹Gulf Research Program Early-Career Research Fellowship

Baraka Lwoya
Tulane University

Date submitted: 11 Nov 2016

Electronic form version 1.4