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Comparison of surface mobility of polymeric and low molecular weight glass-formers. MARK EDIGER, STEPHEN SWALLEN, KEN KEARNS, University of Wisconsin-Madison — The last ten years has seen considerable effort to understand dynamics at the surface of polymer melts and glasses. For comparison, we present data on two low molecular weight glass formers: trisnaphthylbenzene (TNB) and indomethacin (IMC). Neutron reflectivity provides direct information about mobility in the top several nanometers of TNB glasses. Two other measurements (surface crystal growth rates and the enthalpy of glasses prepared by vapor deposition) offer indirect information on surface mobility for IMC and TNB. These measurements indicate that surface dynamics at Tg are 2-5 orders of magnitude faster than bulk dynamics. The temperature dependence of the surface relaxation process is weak below the bulk Tg, in qualitative agreement with recent measurements on polymer surfaces in this regime.

Mark Ediger
University of Wisconsin-Madison

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