

Abstract Submitted  
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**Dynamic glass transition measurements on nm-thin films of low molecular mass substances using AC chip-nanocalorimetry** MATHIAS AHRENBURG, CHRISTOPH SCHICK, HEIKO HUTH, Institute of Physics, University of Rostock, Germany — We are using AC chip nano-calorimetry for the in-situ investigation of the dynamic glass transition of vapor-deposited thin films of toluene<sup>3</sup> and indomethacin of thicknesses between several hundred nm down to ten nm. With these experiments on low molecular mass substances we complement our data on similar thin polymer films<sup>3</sup>. Firstly, the deposition-related thermodynamic state (stable glass) of each film is erased by transforming them into ordinary glasses. Secondly, upon reheating the thin ordinary glass films a direct comparison of the subsequently measured frequency-dependent dynamic glass transition temperatures becomes possible. The frequency of temperature modulation can be varied from 1 Hz up to about 1000 Hz. Film thicknesses for indomethacin are measured ex-situ with an atomic force microscope directly on the membrane of the chip-sensors. Similar to the thin polymer films no thickness dependence of the dynamic glass transition temperature (main relaxation) is seen. The results are in agreement with the explanation given by Cangialosi et al.<sup>3</sup>. 1. M. Ahrenberg et al., *The Journal of Chemical Physics*, 2013, **138**, 024501-024511. 2. H. Huth et al., *Eur. Phys. J. Special Topics*, 2007, **141**, 153-160. 3. S. Napolitano and D. Cangialosi, *Macromolecules*, 2013, **46**, 8051-8053.

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