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Comparison of Thickness and Morphology of Dotriacontane Films on SiO_2/Si Surfaces Vapor-deposited in High Vacuum with those Deposited from Solution[1] E. CISTERNAS, P. SOZA, V. DEL CAMPO, E. RAMIREZ, U.G. VOLKMANN, P. U. Católica Chile, H. TAUB, U. Mo.-Columbia, F.Y. HANSEN, Tech. U. Denmark — We have used Very High Resolution Ellipsometry (VHRE) and Atomic Force Microscopy in the noncontact mode to compare the thickness and morphology of dotriacontane (n-$C_{32}H_{66}$ or C32) films deposited by two different methods on Si(100) wafers coated with their native oxide. During deposition, the substrate temperature was held below the bulk melting point of C32. As monitored by VHRE, the film thickness of different samples was found to be in the range 20 Å to 400 Å. Films deposited by physical vapor deposition from a Knudsen cell in high vacuum are optically smooth and homogeneous, while deposition by dip-coating from a heptane solution also results in optically smooth but less homogeneous layers. Heating/cooling cycles were performed on these two sample types while conducting VHRE and stray light intensity measurements in order to compare the wetting behavior and surface roughness of C32 as a function of film thickness on both hydrophilic and hydrophobic SiO_2/Si surfaces.

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