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Effect of absorbed water on the thermodynamic and kinetic properties of vapor-deposited organic glasses MARTA GONZALEZ-SILVEIRA, CRISTIAN RODRIGUEZ-TINOCO, JOAN RAFOLS-RIBE, AITOR F. LOPEANDIA, JAVIER RODRIGUEZ-VIEJO, Physics Dept. - Universitat Autònoma de Barcelona — Most organic glasses absorb water when exposed to ambient conditions. As a consequence, the glass can experiment changes in its physicochemical properties, being the triggering of crystallization one of the most inconvenient drawbacks. The amount of absorbed water depends on the partial pressure but also on the stability of the glass. Previous studies have shown that ultrastable indomethacin glasses absorb less water than the conventional counterpart. We show here how water absorption modifies the kinetic properties of the glass while, unexpectedly, the thermodynamic stability remains unaltered. By means of ex-situ and in-situ calorimetry, we analyze the relationship between water absorption and kinetic properties for glasses that are vapor-deposited at different temperatures around 0,85 Tg. Moreover, glasses exposed to water vapor exhibit a double glass transition, a clear indication of the presence in the glass of regions with different kinetic stability.

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