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New insights on the influence of manufacturing conditions and molecular weight on phase-separated films intended for controlled release

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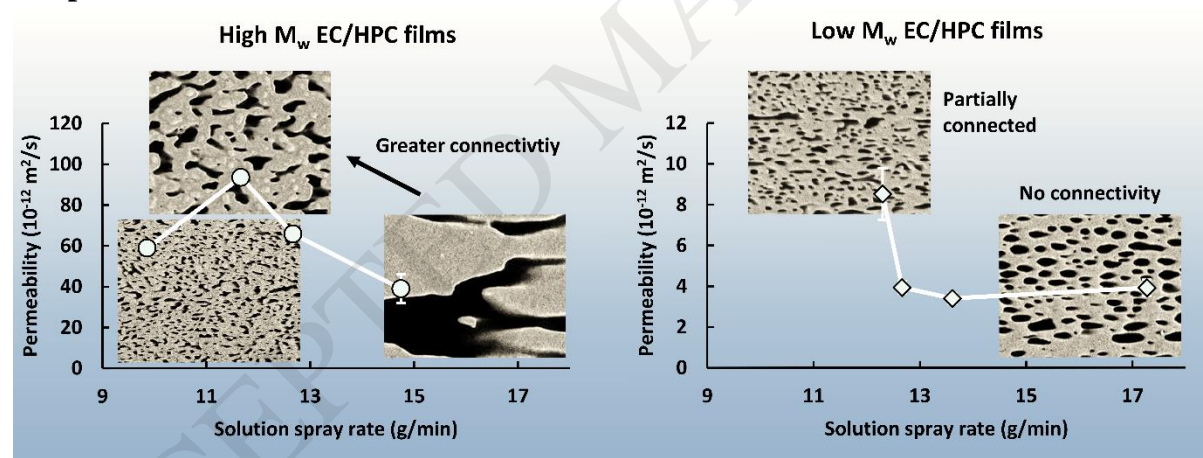
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Graphical abstract



Abstract

The aim of this work was to investigate how manufacturing conditions influence phase-separated films of ethyl cellulose (EC) and hydroxypropyl cellulose (HPC) with different molecular weights of HPC. Two HPC grades, SSL and M, with weight average molecular weights (M_w) of 30×10^3 g/mol and 365×10^3 g/mol, respectively, were combined with EC 10 cps (70:30 w/w EC/HPC) and spray-coated from ethanol solutions onto a rotating drum under well-controlled process conditions. Generally, a low spray rate resulted in a more rapid film drying process and, consequently, in smaller HPC-rich domains in the phase-separated film structure. For EC/HPC films with the low M_w HPC (SSL) the most rapid drying process

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