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Tris(2-aminoethyl)amine in-situ modified thin-film composite membranes for forward osmosis applications

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Abstract

Forward osmosis (FO) has drawn growing attention in recent years, while the lack of desirable FO membranes has been restricting its further development in industrial applications. In this work, a novel tripodal amine — tris(2-aminoethyl)amine (TAEA), with a dual role of catalyst and reactive amine monomer, is incorporated in the PA selective layer for the first time, to in-situ modify the thin-film composite (TFC) membrane. A series of characterization techniques are employed to investigate the modification mechanism involved, as well as changes in chemical properties and the microstructure of the PA layer in terms of the TAEA content and the amine solution

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