

## Molecular Separation in Ultramicroporous Carbon Hollow Fiber membranes via Organic Solvent Forward Osmosis(OSFO)

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Molecular separation of hydrocarbons such as alkane isomers (C5–C8), and aromatic compounds (o-, m- and p-xylene) are especially important due to the value of hydrocarbons as an energy source or vital commodities. However, industrial separation process adopts liquid–vapor phase change based on energy–intensive thermal method (e.g. freeze fractionation, adsorptive separation), which contributes up to 15% of the world’s energy consumption. Recently, pressure–driven membrane processes for the separation of organic liquid mixture including organic solvent nanofiltration(OSN), organic solvent reverse osmosis(OSRO) have been spotlighted with the expectation of reduction in energy–input, but still suffer from low selectivity or excessive driving pressure. In this context, separation modality with low driving force via highly selective membrane is required for organic liquid separations. Herein, we explore the potential of non–pressurization method without phase change, organic solvent forward osmosis(OSFO), via carbon molecular sieve(CMS) hollow fiber membranes for the molecular separation of liquid hydrocarbons.