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(54) **GAS SEPARATIONS USING HIGH PERFORMANCE MIXED MATRIX MEMBRANES**

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(57) **ABSTRACT**

The present invention discloses a novel method of making high performance mixed matrix membranes (MMMs) using stabilized concentrated suspensions of solvents, uniformly dispersed polymer stabilized molecular sieves, and at least two different types of polymers as the continuous blend polymer matrix. MMMs as dense films or asymmetric flat sheet or hollow fiber membranes fabricated by the method described in the current invention exhibit significantly enhanced permeation performance for separations over the polymer membranes made from the continuous blend polymer matrix. MMMs of the present invention are suitable for a wide range of gas, vapor, and liquid separations such as alcohol/water, CO_2/CH_4, H_2/CH_4, O_2/N_2, CO_2/N_2, olefin/paraffin, iso/normal paraffins, and other light gases separations.

12 Claims, No Drawings