ABSTRACT:

For the last two decades polymeric membranes have been used in several gas separation processes. For the high selectivity and permeability various types of membranes have been developed. Thin layers to high dense and hollow fiber to asymmetric wounded materials to determine the effective separation of CO2 from CH4 were used. Ideal membrane materials must have provisions of durability, chemical and thermal resistance, effective separation and economical production and operation. In this review it is observed that most of the polymeric materials face plasticization problem in the separation of CO2 from CH4. This is due to the condensable nature of carbon dioxide that causes swelling in most of the polymeric membranes due to which the efficiency of selectivity and permeability is affected. Most extensive works have been carried out in developing the chemical structure and compositions of polymeric materials to improve the separation properties. Cross-linking and blending of molecular sieving called “mixed-matrix” are the most useful approaches applied in this regard, but no where it is found to be fully effective and ideal polymeric membranes commercially fit to replace the existing systems of CO2 separation from the natural gas. Still area is open to work on to produce more worth full materials and switch towards liquid membranes and hybrid systems.