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# A Study on Pervaporation of Aqueous Ethanol Solution by Modified Polyurethane Membrane

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## DESCRIPTION

Membranes are selective barriers. It enables some things but stops others. Such can be molecules, ions, or other small particles. Membranes can be broadly divided into synthetic membranes and biological membranes. Biological membranes include cell membranes (envelopes of cells or organelles that allow certain components to pass through). Tissue membranes such as mucous membranes and serous membranes. Synthetic membranes are made by humans for use in laboratories and industries (such as chemical plants). The membrane concept has been known since the 18th century, but was rarely used outside the laboratory until the end of World War II. Europe's drinking water supply was endangered by the war, and membrane filters were used to test water safety. However, membranes are not widely used due to their lack of reliability, slow operation, poor selectivity, and increased cost. The first large-scale use of membranes was through microfiltration and ultrafiltration technologies. Since the 1980's, these separation processes have been used in large-scale plants alongside electro dialysis, and today there are several experienced companies serving the market. The degree of membrane selectivity depends on the membrane pore size. According to pore size, they can be divided into Micro Filtration (MF), Ultra Filtration (UF), Nano Filtration (NF) and Reverse Osmosis (RO) membranes. Membranes can also have different thicknesses with uniform or non-uniform structures. Membranes are neutral or charged and particle transport is active or passive. The latter is driven by pressure, concentration, chemical or electrical gradients in membrane processes. Membrane, in biology, a thin layer that forms the outer rim of living cells or internal cellular compartments. The outer boundary is the plasma membrane, and the compartments surrounded by the inner membrane are called organelles. Biological membranes have three main functions. They keep toxins away from cells. They include receptors and channels that allow specific molecules such as ions, nutrients, waste products and metabolites to mediate cellular and extracellular activities between organelles and between the cell and the external environment. It is and they isolate important but incompatible metabolic processes occurring in the organelle. Membranes are primarily composed of lipid bilayers, that is, bilayers of phospholipid, cholesterol, and glycolipid molecules containing fatty acid chains, which determine whether membranes form into long flat sheets or rounded vesicles. Lipids give cell membranes their liquid properties and their consistency is similar to that of light oils. Fatty acid chains allow many small lipid-soluble molecules such as oxygen to pass through membranes, but repel large water-soluble molecules such as sugars and charged ions such as calcium. They are embedded with large proteins, many of which transport ions and water-soluble molecules across membranes. Some proteins in the plasma membrane form open pores called membrane channels that allow free diffusion of ions into and out of the cell. Others bind to specific molecules on one side of the membrane and transport them to the other side. A protein can simultaneously transport two molecules in opposite directions. Most plasma membranes are approximately 50% protein by weight, whereas the membranes of some metabolically active organelles are 75% protein. Long carbohydrate molecules are attached to proteins on the outside of the plasma membrane.

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None.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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