



## Synthesis of a Proton Exchange Membrane from Natural Latex Modified with Vanadium Pentoxide for Application in a Fuel Cell

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**Abstract :** Proton Exchange membranes were synthesized using natural latex of rubber trees from Cartagena, Bolívar. Natural latex was modified by the addition of an inorganic load ( $V_2O_5$ ) at different amounts (2, 4 and 6%), to improve the proton exchange and physicochemical properties. It was evaluated the ionic Exchange capacity, the water uptake and the oxidative stability for each sample. Membranes loaded with 6%  $V_2O_5$  showed highest water uptake (values 20,34%), and highest mechanical properties. However, ionic exchange capacity of membrane loaded with 4% showed highest values, due to a saturation in membranes. These characteristics attribute high potential for applications in a fuel cell.

**Keywords :** Fuel cell, membrane, Natural latex, load, vanadium pentoxide.

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